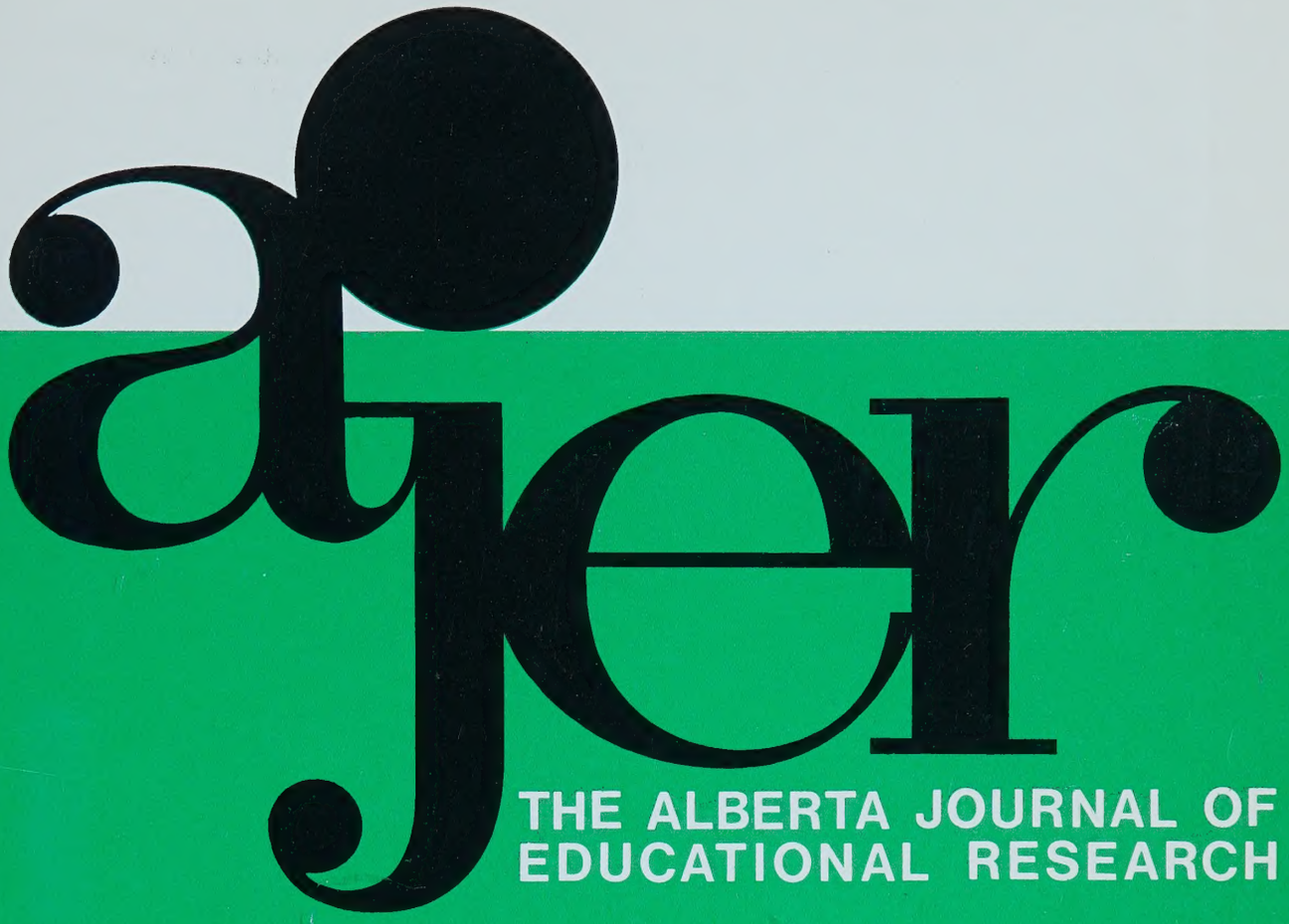

THE ALBERTA JOURNAL OF EDUCATIONAL RESEARCH

VOLUME XXVII NUMBER 2 JUNE 1981

PUBLISHED BY
THE UNIVERSITY OF ALBERTA • EDMONTON

THE ALBERTA JOURNAL OF EDUCATIONAL RESEARCH

A quarterly journal devoted to the dissemination, criticism, interpretation and encouragement of all forms of systematic enquiry into education and fields related to or associated with education.

Published quarterly in March, June, September, December by the
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AJER gratefully acknowledges support from the Social Sciences and Humanities Research Council of Canada and from the Alberta Advisory Committee for Educational Studies.

AJER is indexed in the *Canadian Education Index, Current Contents/Social and Behavioral Sciences,* and *Social Science Citation Index;* appropriate articles are abstracted in *Educational Administration Abstracts, Psychological Abstracts, Sociology of Education Abstracts,* and *Language Behavior Abstracts.*

The subscription rate is $10.00 per year; single copies are $3.00 each. Please make cheques payable to *The Alberta Journal of Educational Research.* All back issues are available; rates supplied on request. Claims for undelivered copies must be received within three months of the month of publication.

Address all communications and manuscript submissions to the Editor, *The Alberta Journal of Educational Research,* Faculty of Education, 732 Education South, The University of Alberta, Edmonton, Canada, T6G 2G5.

SECOND CLASS MAIL REGISTRATION NUMBER 1436

ISSN 0002-4805

The Alberta Journal of Educational Research

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The Alberta Journal of Educational Research *Vol. XXVII, No. 2, June, 1981*

ESTELLE R. JORGENSEN
McGill University

An Analysis of Selected Music Supervisor Tasks in Canada

This article reports findings of a baseline questionnaire survey of music supervision in Canada with respect to music supervisor tasks. A profile of music supervisor tasks is described and comparisons by geographic region in Canada, music supervisor type, and jurisdiction size type are made. The implications for a theoretical model of music supervisor function are then discussed.

An important aspect of research in school music administration is the development of a theoretical formulation which addresses fundamental questions with respect to the administrative role in school music and the relationship between school music administration and the instructional process. Research in school music administration has not yielded conclusive evidence upon which such theoretical formulation may be based.

Several recently published studies of the music supervisor role may be noted. In a time-use survey of music supervisors in California, McQuerrey (1972) found a divergence among music supervisor roles. Dawson (1972) presented largely inconclusive evidence respecting the essential role characteristics leading to successful music programs in California schools. Heller and Quatraro (1977), in investigating the relationship between the perceptions of role expectations and the perceived performance of the music coordinator for a sample of school districts in New York State, found a divergence among music staff, music coordinators, school board presidents and school board officers as to the perception of the role of music coordinator. They also found that in four areas, i.e., routine, staffing, curriculum, research and evaluation, the coordinators' performance did not meet the level of expectation established. The order in which the supervisors came closest to fulfilling the level of expectation established was: (1) routine, (2) staffing, (3) curriculum, (4) research and evaluation.

The objective of the study presently reported was an analysis of selected music supervisor tasks in Canada, in particular, comparisons by geographic region in Canada, music supervisor type, and jurisdiction size type. This was perceived as the first step in the process of generating a theoretical model of music supervisor function.

Dr. Jorgensen is Associate Professor of Music and Chairman of the Department of School Music, McGill University, Montreal, Canada. Her published work focuses on aspects of school music administration and on theoretical issues in school music. She is a member of the executive committee of the *Canadian Music Research Council* and is currently involved in funded historical and theoretical projects in school music research.

Procedures

This study is based on data from a questionnaire survey of music supervisors in Canada listed by Laughton (1974) and conducted in 1977 (Jorgensen, 1980).

Twenty-nine music supervisor tasks were categorized as follows:

1. Public Relations: Those tasks involving the relationship of the school music program with the community (both community involvement in the music program and community outreach by the school music program) as well as the relationship of the school music program to school board administrators and teachers.
2. Administrative: Those organizational tasks involving centralization or decentralization of the school music operation, budgeting and financing of school music programs, among others.
3. Consultative: Those tasks involving the conducting of workshops, the provision of teacher resources and inservice training, teacher counselling, and the advising of schools regarding facilities, scheduling problems, among others.
4. Evaluative: Those tasks involving the selection of teachers for employment and for dismissal, the evaluation of school music programs, materials, equipment, and procedures, and the monitoring of student musical achievement, among others.

Tasks were originally derived from Weyland's list (Weyland, 1968) and subsequent additions and deletions were made following the writer's pilot study of music supervision in the Berrien County, Michigan (Jorgensen, 1970). Subsequently, the instrument was refined following its presentation to a sample of selected music educators, educational administrators, sociologists, educational theorists, and two doctoral classes in educational administration at the University of Calgary.

Respondents completed the checklist of 29 items with a "yes" or "no" as appropriate, indicating whether or not it was their function to undertake each itemized task.

Questionnaire responses were categorized as follows:

1. Music supervisor: The chief administrative officer responsible for school music in a given jurisdiction.
2. Music supervisor - Type I: A music supervisor exercising function with respect to both the hiring and dismissal of music teachers.
3. Music supervisor - Type II: A music supervisor exercising function with respect to either the hiring or dismissal of music teachers.
4. Music supervisor - Type III: A music supervisor exercising no function with respect to either the hiring or dismissal of music teachers.
5. Jurisdiction: The school board or province (state) over which the supervisor administers the school music program.
6. Jurisdiction - Size Type I: A jurisdiction having a minimum of 29 music specialists (a minimum of 11 secondary school specialists), a minimum of 1,900 students in secondary school music programs, and music specialists at both the elementary and secondary levels.
7. Jurisdiction - Size Type II: A jurisdiction having 5 and less than 11 music specialists at the secondary level, and a minimum of 500 students in secondary school music programs.
8. Jurisdiction - Size Type III: A jurisdiction having less than 5 secondary school music specialists, and less than 500 students in secondary school music programs.

9. Geographic Region: A tract of country with more-or-less defined boundaries or characteristics defined by politico-geographic criteria. Five regions in Canada were identified as follows: British Columbia, the Prairie Provinces, Ontario, Quebec, and the Maritime Provinces. All ten provinces were included in the study.

Results

A profile of music supervisor tasks categories is shown in Table 1, as are the mean number of Yes responses to the 29 Yes/No checklist questions of music supervisor tasks and the standard deviation for each task category. The highest mean of Yes responses was found in the public relations task category and the lowest mean of Yes responses and the highest standard deviation were found in the evaluative task category. While the means for public relations, administrative, and consultative task categories were grouped together, the mean for the evaluative task category was lower, resulting in a statistically significant difference in means ($p<0.05$). The variation of Yes responses within the consultative task category was the lowest of the four music supervisor task categories.

TABLE 1

PROFILE OF SELECTED MUSIC SUPERVISOR TASK CATEGORIES

Music Supervisor Task Categories	$\bar{X}$ "Yes" Responses	S.D.
Public Relations	66.33	11.68
Administrative	59.17	10.87
Consultative	65.42	8.37
Evaluative	44.25	21.89

Note. Number of respondents = 79

The ranks assigned by the music supervisors to supervisor task categories in order of importance they attached to each are shown in Table 2. A Kendall Coefficient of Concordance was computed ($W=0.03$; $p>0.05$); no statistically significant level of concordance among supervisor rankings across supervisors was found.

TABLE 2

RANKS ASSIGNED TO TASK CATEGORIES BY MUSIC SUPERVISORS

Music Supervisor Task Categories	Assigned Rank
Public Relations	3
Administrative	2
Consultative	1
Evaluative	4

($W = 0.03$; $p > 0.05$)

A comparison of selected music supervisor task categories by geographic region in Canada is shown in Table 3. No statistically significant difference by geographic region was found for any of the comparisons ($p>0.05$).

TABLE 3

COMPARISON OF SELECTED MUSIC SUPERVISOR TASK CATEGORIES BY GEOGRAPHIC REGION IN CANADA

Music Supervisor Task Categories	χ^2	*df*
Public Relations	1.30	8
Administrative	8.02	20
Consultative	7.55	44
Evaluative	15.66	28

Note. All comparisons were not significant ($p>0.05$)

A comparison of selected music supervisor task categories by music supervisor type is shown in Table 4. Three comparisons were not significant ($p>0.05$). A statistically significant difference by music supervisor type was found for evaluative tasks ($p<0.05$).

TABLE 4

COMPARISON OF SELECTED MUSIC SUPERVISOR TASK CATEGORIES BY SUPERVISOR TYPE

Music Supervisor Task Categories	χ^2	*df*	*p*
Public Relations	1.30	8	
Administrative	1.49	10	
Consultative	12.07	22	
Evaluative	42.07	10	$p < 0.05$

Note. Three comparisons were not significant ($p > 0.05$)

A comparison of selected music supervisor task categories by jurisdiction size type is shown in Table 5. No statistically significant difference by jurisdiction size type was found for any of the comparisons ($p>0.05$).

TABLE 5

COMPARISON OF SELECTED MUSIC SUPERVISOR TASK CATEGORIES BY JURISDICTION SIZE TYPE

Music Supervisor Task Categories	χ^2	*df*
Public Relations	0.75	4
Administrative	0.60	10
Consultative	4.36	22
Evaluative	11.36	14

Note. All comparisons were not significant ($p > 0.05$)

Discussion

The findings imply a considerable degree of homogeneity in music supervisor tasks in Canada despite the wide variation in geography and in the size of music programs administered across the country. A similarity to findings of homogeneity in academic and professional preparation of supervisors in Canada is evident (Jorgensen, 1980). The reasons for this homogeneity warrant further investigation. The homogeneity of academic and professional preparation and supervisor task profiles supports the theoretical notion of an identifiable school music supervisor "type" (Zentner, 1979).

Of particular interest in this study is the low ranking accorded evaluative tasks, both in terms of function (as indicated by Yes responses for each task) and perceived importance (as indicated by supervisor-assigned ranks). These results lend support to the conclusion that music supervisors in Canada are viewed by administrators and view themselves principally as "consultants." Generally, they lack or fail to use evaluative powers which might enable them to accomplish their objectives more effectively. The evidence supports published findings in earlier studies in the United States (McQuerrey, 1972; Dawson, 1972; and Heller & Quatraro, 1977).

The consistency of present findings for Canada with those in the U.S.A. further supports the theoretical notion of a Type C politico-organizational environment in which local governments have executive responsibility for music education, e.g., U.S.A. and Canada (Jorgensen, 1980), and where music supervisor tasks may be expected to be essentially similar. While individual tasks may vary in detail or may be emphasized differently from time to time or from place to place, there are certain fundamental similarities in supervisor function within a given politico-organizational environmental type. Findings in the present study suggest that in Type C environments, evaluative functions do not play as important a role as other (e.g., consultative) functions.

While it is interesting to examine the nature of school music supervisor tasks and to quantify them in various ways, other questions bearing on the relationship of music administration to the instructional process remain. For example, it has been hypothesized that:

> Music education when conducted in the context of an administrative system revealing a consistent policy over a wide social-actual space and through an extended period of time is more efficient than music education conducted in the absence of such a consistent policy over a wide social-actual space and through an extended period of time. (Jorgensen, 1977, p. 211).

This principle assumes: (a) a central link between a consistent policy over the long term and the quality of musical instruction; and (b) that some central agency or individual (viz., music supervisor) be empowered to implement such a consistent policy. It further implies an understanding of the political process of a given politico-organizational environment, for example, the identification of supervisor profiles (both preparation and function) which will maximize supervisor effectiveness in a given jurisdiction. These issues warrant further research.

TABLE 6

A SYSTEMATIC DIAGRAM OF SYSTEM PROCESSES AND THEIR RELATED NORM-SETS

Processes	*Norm-sets*
Temporal-spatial coordination	Time-space norms
Goal seeking	Purpose norms
Information-exchange	Communication norms
Recruitment	Admission norms
Socialization	Ideological norms
Personification	Identity norms
Evaluation	Reference-group selection norms
Differentiation	Specialization norms
Segmentation	Segmentation norms
Integration	Jurisdictional norms
Responsibility-allocation	Role-assignment norms
Stratification	Status-assignment norms
Role coordination	Leadership norms
Decision-making	Procedural norms
Cooperation	Mutuality norms
Competition	Resource allocation norms
Conflict	Accommodation norms
Motive ascription	Hypothecating norms
Image-preservation	Image-maintenance norms
Maturation	Maturity-maintenance norms
Reality-maintenance	Objectivity-maintenance norms
Loyalty-maintenance	Morale norms

(Zentner, 1973, p. 128. Reprinted by permission)

Part of the difficulty in examining the relationship of school music administration and instruction has resulted from the limitations of the research methodologies typically used. These have been largely based on *structural functionalist* models (Zentner, 1973). The characteristics of structural functionalist models include: (a) a closed system; (b) a system applicable only to a particular time and space and to a given integrative level of analysis, be it physical, psychological, institutional, societal or historical (Taylor, 1975); and (c) a *static* system, i.e., one which does not respond to changes through time and space. For example, specific supervisor tasks identified in the context of one jurisdiction are liable to change from time to time and may become obsolete or may be inappropriate to another jurisdiction or within another organizational structure. Further, difficulties of comparison arise from the use of a variety of supervisor task taxonomies in research.

Alternatively, *processual* models, i.e., open systems applicable to all integrative levels of analysis or levels of causation and responsive to changes through time and space, may constitute a useful methodological basis for research. A variety of such models exploring the operation of *processes* in organizations are extant, including Etzioni (1964), Loomis and Loomis (1965), Bakke (1967), and Zentner (1973), among others.

Of these approaches, Zentner's model holds considerable promise for research in music administration. Professor Zentner has described 22 group processes with their associated "norm-sets" which are applicable to all social organizations (see Table 6).

The analysis can be applied at a variety of integrative levels of analysis and especially at the institutional level. The processes need systematic and theoretical description and analysis within the context of school music administration and subsequent rigorous testing over the short as well as the long run. Zentner's model enables an investigation of questions which are problematic when investigated via structural functionalist models. Further, it provides a useful framework for future research in school music administration, in particular, its relationship to the instructional process.

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Systematic Computational Errors and Achievement in Elementary Mathematics

The relationship between systematic computational errors and achievement is examined using a sample of native Indian children. A significant relationship was found to exist between error type and achievement in multiplication, with high achievers tending to make nonsystematic errors and low achievers tending to make systematic errors. No significant relationships were found between achievement and error type for addition or subtraction.

There is a general agreement that computational errors occur at all levels of achievement in elementary mathematics (Ashlock, 1976), yet no research appears to have been done which relates the kind of computational error pupils make to the level of achievement. In this study the relationship between *systematic* computational errors and achievement in addition, subtraction, and multiplication is investigated.

A distinction must be made between errors due to incomplete knowledge of basic facts and errors due to faulty computational procedures. For example, an error such as:

$$\begin{array}{r} 52 \\ +23 \\ \hline 76 \end{array}$$

is an error in basic facts because the child, for a variety of possible reasons, failed to recall the correct sum of 2 and 3. On the other hand, an error such as:

$$\begin{array}{r} 42 \\ \times 21 \\ \hline 82 \end{array}$$

is a computational error because the algorithm the child used to find the product was to multiply the one's digits and the ten's digits of the multiplicand and the multiplier. Clearly, the remedial procedures used for basic fact errors are different from those used for computational errors. Basic fact errors are readily identified and corrected, whereas Cox (1975b) found computational errors persistent and difficult to identify at times.

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Various methods of classifying computational errors have been proposed. Brueckner (1930) was one of the first to develop a classification scheme, although much of Brueckner's work is of questionable value today (Ashlock, 1976). More recently, Roberts (1968) used four categories of errors or "failure categories": wrong operation, obvious computational errors, defective algorithm, and random response. Only two categories, careless and conceptual, were used by West (1971). West's classification system distinguishes between whether or not errors are consistently made. That is, careless errors are not consistent, but conceptual ones are. Once an error has been classified as consistent, the teacher must then establish if it is due to basic facts or inability to apply a correct algorithm.

Cox (1975a), like West, emphasizes the consistency of errors in another classification system. A distinction is made between systematic errors, random errors, and careless errors. Systematic errors have a discernible pattern and must occur in at least three out of five problems testing a specific algorithm; random errors must occur as often but have no discernible pattern; and careless errors are those occurring fewer than three times. The rationale for requiring five problems to test skill possession was based on concern for reliable diagnoses of systematic errors.

Method

Subjects

The subjects consisted of 60 grade 5 Micmac and Maliseet Indian children living on three reserves in New Brunswick. This group, except for several students who were absent during the testing, represented the grade 5 population on reserves who attended schools operated by the Federal Department of Indian Affairs. The reserves are in rural areas of the province, yet all are within 100 miles of a major urban center. Pupils in these schools follow essentially the same curriculum as their counterparts in provincial schools. The sample was considered particularly appropriate for the study, as teacher reports and standardized test results (e.g., Cooper, Elliott & Owston, 1977) have indicated that these children tend to score below provincial norms with the deficit increasing as they progress through school.

Instrumentation

Subjects were administered the Algorithm Assessment Test (AAT), a 200-item diagnostic test used by the New Brunswick Department of Education. The test measures three basic computational skill areas: addition, subtraction, and multiplication. Eleven different skill levels ranging in difficulty from finding the sum of a two-digit and a one-digit number without regrouping, to finding the sum of two three-digit numbers with multiple regrouping and zero involvement. There are 14 subtraction skill levels ranging in difficulty from finding the difference between a two-digit and a one-digit number without regrouping, to finding the difference between a four-digit and a three-digit number with multiple regrouping. The 15 multiplication skill levels range in difficulty from finding the product of a one-digit and a two-digit number to finding the product of a two-digit and a three-digit number with multiple regrouping. Each skill level is measured with five test items. Items are presented in the vertical form and subjects are directed to show all work required to calculate their answers.

Because of the length of the test, it is divided into ten subtests, each of which contains at least five addition, five subtraction, and five multiplication items. The subtests were administered on consecutive days by the homeroom teachers in their

regular classrooms. There was no time limit, although 30 minutes proved sufficient in most cases. Also, since the emphasis of the test was on performing the algorithms successfully, subjects were told they could ask their teachers questions regarding the basic facts such as "how much is 2 x 2?"; however, questions about the algorithms such as "do I have to borrow?" could not be asked. Despite these directions, teachers reported that no more questions were asked than was usual for other class tests.

Procedure

After the tests were administered, the answers were scored correct or incorrect and the total score for each of the three skill areas was found for each subject. Then with the help of several assistants, all incorrect answers for each skill level were examined together to discern an error pattern. If an error pattern was evident in at least three of the five answers, the error was classified as systematic, following the suggestion of Cox (1975a). The error was classified as nonsystematic if at least three of the five answers were incorrect but no pattern was found. Cases where a scorer was uncertain about the classification were referred to other members of the scoring team for discussion and eventual resolution. Errors which occurred fewer than three out of five times were categorized as "other" and were included in the study only to give an indication of the pervasiveness of systematic errors.

When the error classifications were completed for addition, the papers were divided into two groups, high achievers and low achievers, according to the total addition score. High achievers were defined as those scoring above the median score, while low achievers were defined as those scoring at or below the median score. The number of systematic and nonsystematic error classifications made in each group was then tabulated. The same procedure was repeated for subtraction and multiplication.

Results

The numbers of errors made by all subjects for addition, subtraction, and multiplication are given in Table 1. From this table it can be seen that the greatest proportion of systematic errors occurred with subtraction (38.5% of the total), followed by multiplication (27.7%) and then by addition (12.4%).

TABLE 1

NUMBERS OF ERRORS MADE BY ALL SUBJECTS
FOR ADDITION, SUBTRACTION, AND MULTIPLICATION

Operation	Error Type			Total Number of Errors
	Systematic	Nonsystematic	Other	
Addition	32 (12.4)	11 (4.2)	216 (83.4)	259
Subtraction	140 (38.5)	20 (5.5)	204 (56.0)	364
Multiplication	108 (27.7)	61 (15.6)	221 (56.7)	390

Note. Row percentages indicated in parentheses.

Presented in Tables 2, 3, and 4 are the numbers of systematic and nonsystematic errors made by high and low achievers for addition, subtraction, and multiplication respectively. In order to test the hypothesis of a relationship between error type and achievement, a chi-squared test (with Yates correction factor) was applied to these tables.

TABLE 2

NUMBER OF SYSTEMATIC AND NONSYSTEMATIC ERRORS MADE BY HIGH AND LOW ACHIEVERS IN ADDITION

Error Type	Achievement		Total Number of Errors
	Low	High	
Systematic	31	1	32
Nonsystematic	10	1	11

TABLE 3

NUMBER OF SYSTEMATIC AND NONSYSTEMATIC ERRORS MADE BY HIGH AND LOW ACHIEVERS IN SUBTRACTION

Error Type	Achievement		Total Number of Errors
	Low	High	
Systematic	125	15	140
Nonsystematic	16	4	20

TABLE 4

NUMBER OF SYSTEMATIC AND NONSYSTEMATIC ERRORS MADE BY HIGH AND LOW ACHIEVERS IN MULTIPLICATION

Error Type	Achievement		Total Number of Errors
	Low	High	
Systematic	105	3	108
Nonsystematic	52	9	61

A significant relationship was found between error type and achievement in multiplication ($\chi^2=5.25$, $p<.05$). High achieving individuals tended to make more nonsystematic errors than systematic errors. On the other hand, more systematic errors than nonsystematic errors were made by low achievers.

No significant relationships were found between addition achievement and error type ($\chi^2=.0003$, $p>.05$) and subtraction achievement and error type ($\chi^2=.691$, $p>.05$). Both high and low achievers tended to make a proportionally greater number of systematic errors than nonsystematic errors in addition and subtraction.

TABLE 5

EXAMPLES OF COMMON SYSTEMATIC ERRORS IN ADDITION

Skill	Example of Error	Description of Error
Adding a one-digit and a two-digit number; no regrouping required.	27 + 2 49	Units digits correctly added; tens digit in upper addend added to units digit in lower addend.
Adding a one-digit and a two-digit number; regrouping required.	1 43 + 9 142	Units digits correctly added with correct regrouping; tens digit in upper addend added to units digit in lower addend.
Adding two three-digit numbers; regrouping required in units, tens, and hundreds places.	1 689 +463 10152	Units digits correctly added with correct regrouping; no regrouping performed in hundreds place.

Due to the relatively few systematic errors made by high achievers for each of the three operations, meaningful comparisons could not be made between the kinds of systematic errors made by high and low achievers. Examples of the most common kind of errors made by the entire group are given in Tables 5, 6, and 7 for addition, subtraction, and multiplication respectively.

TABLE 6

EXAMPLES OF COMMON SYSTEMATIC ERRORS IN SUBTRACTION

Skill	Examples of Errors			Description of Error
Subtracting a one-, two-, or three-digit number from another one-, two-, or three-digit number; regrouping required.	31 - 8 37	526 - 54 532	634 -456 222	The smallest number is subtracted from the largest number in each column.
Subtracting a two- or three-digit number from another two- or three-digit number with a zero in minuend or subtrahend; regrouping required.	70 -47 37	57 -40 10	200 -144 144	Whenever zero is in the same column as another number, zero or the other number is given as the difference.
Subtracting a two-digit number from another two-digit number; with or without regrouping.		89 -47 12 45 462		The common multiplication algorithm is applied to a subtraction problem.

TABLE 7

EXAMPLES OF COMMON SYSTEMATIC ERRORS IN MULTIPLICATION

Skill	Example of Error	Description of Error
Multiplying a two-digit number by a one-digit number; regrouping required.	35 ×5 325	Units digits multiplied without regrouping and tens digit of multiplicand placed in the hundreds position in the product.
Multiplying a two-digit number by a two-digit number; regrouping required.	1 35 ×53 165	Units digits multiplied with regrouping in tens place of multiplicand; tens digits multiplied.
Multiplying a three-digit number by a two-digit number.	253 ×45 1265 1012 1277	Algorithm performed correctly except the lower partial product is not shifted one place to the left.

Discussion

Although no other studies have examined systematic errors and achievement, the study of Roberts (1968) provides a context in which the results of this study may be viewed. The findings of this study support his findings to the extent that errors involving incorrect application of an algorithm occur at all achievement levels,

including the fourth quartile. Roberts found that in the lowest quartile, random errors exceed algorithmic errors, however. This apparent contradiction might be explained by the fact that Roberts did not break down his analysis by operation, so possibly the division operation, which was not included in this study, biased the data. Another explanation could be that since Roberts did not use more than one test item to measure each skill, errors which appeared to be random would have been diagnosed as systematic with more adequate testing. If neither of these explanations prove correct, the contradictory findings could be explained by differences in which both groups of subjects were taught mathematics.

The reason why achievement was found to be related to error type for multiplication yet not for addition and subtraction is less clear. The relatively small number of errors made by the high groups (2, 19, and 11 for addition, subtraction, and multiplication, respectively) may not be representative of the population and, hence, the conclusions should be regarded as tentative pending replication on a larger sample. Given this limitation, then, perhaps nonsystematic errors exceeded systematic errors for high achievers but not for low achievers because more sophisticated faulty algorithmic errors were made by high achievers. Some of these errors may have gone undetected by the scorers. If individual diagnosis had been possible whereby scorers could have asked questions regarding the subjects' solutions, more nonsystematic errors might have been classified as systematic for high achievers. Whether or not this would have resulted in the number of systematic errors exceeding nonsystematic errors is open to speculation.

Despite the tentative relationship established between multiplication achievement and error type, this study does suggest that systematic computational errors contribute substantially to poor achievement. Furthermore, the error patterns made by the present subjects do not appear to be different from the kinds described by Ashlock (1976) and others. Teachers must, therefore, make an effort to identify the kinds of systematic errors their pupils are making and prescribe appropriate remedial procedures, and to avoid simply labelling algorithmic errors as "stupid" or "careless" and telling their pupils to "try harder next time." Beyond this, teachers should examine their teaching techniques with a view towards preventing systematic errors from occurring.

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The Alberta Journal of Educational Research *Vol. XXVII, No. 2, June, 1981*

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A Comparative Analysis of Vocabulary Load of Three Provincially Adopted Primary Arithmetic Series

Results of a computer-assisted program to investigate the degree of variability, overlapping, and vocabulary load found between three current provincially adopted primary arithmetic series are presented. A Basic Comprehensive Primary Vocabulary List of 565 words was compiled, derived from vocabulary found to be common to two or more of the series studied. Findings indicate that: (a) the total number of running words differed considerably between series; (b) there is a marked increase in different words at both the second and third grade levels in each of the series; (c) the majority of different words in any one series were not found to be repeated more than one to nine times; and (d) not a large number of different words were found to be in common between series or grades in any given series. The results of these findings are further discussed in terms of their implications for primary teachers, textbook selection committees, and authors of arithmetic textbooks.

Although a large number of new and revised editions of primary grade arithmetic textbooks have found their way into the classroom over the past few decades, the problem of reading difficulty of these texts continues to pose a serious concern for teachers in terms of providing for the needs of primary pupil reading ability (Dallman, Rouch, Char & DeBoer, 1978, pp. 323-324).

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In recent years, primary arithmetic textbooks have undergone considerable change in content, methodology, and in the introduction of new and expanded vocabulary loads and concepts. These changes can perhaps be best exemplified by the introduction of "New Math" (Spache & Spache, 1977, p. 301) and the more recent adoption of metricated mathematics textbooks now widely used in Canadian schools.

Since each school in the province of British Columbia selects one or more of the prescribed series, schools in a single district may well be using different series for the same grade levels. Thus it is reasonable to assume that a child transferring from one school to another within a district or between districts will encounter a different prescribed series.

Inasmuch as vocabulary plays an important role in the reading ease or difficulty of most primary grade textbooks (e.g., basal readers) and because teachers rely mainly upon textbooks for instructional purposes, there appears to be a real need at this time to provide teachers with more current information on the degree of variability, overlapping, and vocabulary load found in most primary arithmetic textbooks.

Background

Earlier research studies including those of Repp (1960), Kerfoot (1961), Stauffer (1966), Smith and Heddens (1964), Reed (1965), Browning (1970), and Willmon (1971, 1975) have previously explored vocabulary in primary arithmetic. However, the purpose of this study was to examine the vocabulary of more recent arithmetic series commonly used throughout British Columbia in order to develop an updated basic comprehensive primary vocabulary list (BCPVL) which would better reflect modern and metricated mathematics vocabulary found in current arithmetic textbooks.

Problem

The essential purpose of this study was to compare the vocabularies of three prescribed primary arithmetic series for grades 1, 2 and 3 in the province of British Columbia with respect to the following:

1. What is the total number of running words for the combined texts in grades 1, 2 and 3 for each of the three series?
2. What is the total number of running words in each text for grades 1, 2 and 3 in each of the three series?
3. What is the total number of different words in each text for grades 1, 2 and 3 in each of the three series?
4. What is the total number of different words for the combined texts in grades 1, 2 and 3 for each of the three series?
5. What is the frequency of repetition for each word contained in separate texts for grades 1, 2 and 3 in each of the three series?
6. What is the total number of words in common by grade between series?
7. What is the total number of words in common between any of the three series?

In other words, in primary grades consistency of vocabulary across the grades and between series is of crucial importance for instruction. Repetition of words is also a significant variable to consider, especially at the primary level.

Definition of Terms

For purposes of this investigation, the following meanings were associated with these terms:

Running Words. Every printed word appearing in: (a) any text for grades 1, 2 and 3, or (b) any one of the three series.

Different Words. Running words which are identified exactly once, regardless of frequency of occurrence in: (a) any text for grades 1, 2 and 3, or (b) any one of the three series.

Words in Common. Words which appear at least once in: (a) any two textbooks of the same grade, irrespective of series, or (b) any two or all three of the series.

Unique Words. Words which are not in common in: (a) any two textbooks of the same grade, irrespective of series, or (b) any two or all three of the series.

Method

The three arithmetic series selected for this study were those currently prescribed for British Columbia schools. They are widely used in many provinces of Canada and in some parts of the United States.

The texts included in this investigation were limited to those of grades one through three, totaling nine books in all. Included were the following:

1. *Heath Elementary Mathematics Canadian Metric Edition.* Books 1, 2, 3. Toronto: D.C. Heath Canada Ltd., 1975.
2. *Investigating School Mathematics.* Books 1, 2, 3. Don Mills, Ontario: Addison-Wesley (Canada) Ltd., 1973.
3. *Project Mathematics SI Metric.* Books 1, 2, 3. Toronto, Montreal: Holt, Rinehart and Winston of Canada Ltd., 1975.

The total vocabulary of the three series was keypunched onto computer cards which were coded by grade and series. These cards were then entered and stored in computer files. A computer program was developed and applied to the running words to determine: (a) the total number of running words in each text and in each series, (b) the total number of different words in each text and in each series, and (c) the frequency of repetition of each different word in each text and in each series. A second computer program was then initiated to determine: (a) the number of words in common by grade between series, and (b) the number of words in common between any of the three series.

Tabulations of data were based on the total number of running words which included: (a) proper nouns, (b) words containing inflectional endings, (c) abbreviations, and (d) variants, found in each of the three series.

The criteria used to determine the Basic Comprehensive Primary Vocabulary List (BCPVL) were predicated upon the identification of words which were common to two or more of the series and not upon frequency of occurrence (Harris & Jacobson, 1972, p. 34; 1973). However, in order to maintain consistency with most compilers of word lists, it was necessary to merge inflected word forms with root words (e.g., products, product); proper nouns, abbreviations and different root word endings were deleted (Harris & Jacobson, 1972, p. 27; 1973). Words were assigned to grade level according to their first appearance in a particular text, a procedure also used by Stauffer (1966, p. 142). For example, if the word *amount* first appeared in a second grade text and later in a third grade text, it was identified as a second grade word.

Results

There appears to be a considerable variation in the total number of running words between series. An examination of Table 1 shows that the distribution of these running words by series was: (a) Heath (DCH) 32 745; (b) Holt, Rinehart Winston (HRW) 40 149, and (c) Addison-Wesley (AW) 45 080. Although few differences were found in vocabulary load between the first and second grade texts, there was a considerable increase in the number of running words between the second and third grade texts as well as the first and third grade texts. These differences are shown in Table 1, which reveals that the increase in the number of running words between the second and third grade texts for the DCH series and the HRW series is 2.6 and 2.7 times, respectively, while AW has a greater increase of running words between these same grades, 4.3 times.

TABLE 1

NUMBER OF RUNNING WORDS BY SERIES AND GRADE

Grade	DCH	HRW	AW
1	4 574	3 717	3 803
2	7 856	9 724	7 734
3	20 315	26 708	33 543
1 + 2 + 3	32 745	40 149	45 080

Table 1 also illustrates an increase in the number of running words between first and third grade texts, in that DCH's total number of running words is increased 4.4 times, HRW's increase is 7.2 times, and AW is increased 8.8 times.

These results indicate that of the three series, a student using the DCH texts would have the least number of running words to contend with for grades one to three, whereas a student using the AW texts would be confronted with the greatest number of running words for these same grades.

A further examination of data presented in Table 1 shows that the total number of running words in each of the Grade 1 texts, for each of the series, does not differ appreciably. However, at the grade 2 level, the HRW text has approximately 2 000 more running words than the DCH or AW texts. There appears to be very little difference in the number of running words in the grade 3 texts between DCH and HRW (6 393 words) and between AW and HRW (6 835 words). However, the greatest difference in the number of running words is found between DCH and AW (13 228 words) — a sizeable difference.

TABLE 2

NUMBER OF DIFFERENT WORDS BY SERIES AND GRADE

Grade	DCH	HRW	AW
1	372	424	364
2	762	763	917
3	1 391	1 540	2 075
1 to 3 [a]	1 595	1 785	2 365

[a] These totals exclude the number of different words overlapping between grades 1, 2, and 3 texts from each of the given series.

An examination of Table 2 reveals the number of different words found in each text for grades 1, 2 and 3 from each of the three series. The total number of different words contained in the DCH series is 1 595; the HRW series, 1 785; and the AW series, 2 365. These data indicate that the AW series has an appreciably larger number of different words than the other two series, 33 percent more than DCH and 25 percent more different words than HRW. Further, the HRW series contains 11 percent more different words than the DCH series.

The data also reveal that the increase in the number of different words between the consecutive graded texts is approximately double for both the DCH and HRW series. Moreover, the increase in the number of different words in the AW series is even greater (approximately 2.4 times).

A further examination of Table 2 reveals some interesting results with respect to the number of different words contained in texts at the same grade level. For example, in comparing the grade 1 texts from each of the three series, HRW has 12 percent and 14 percent more different words than DCH and AW, 52 and 60 words respectively. For the beginning reader this difference might well present a problem, depending upon the degree of complexity and familiarity of these words.

A comparison of grade 2 texts shows that AW has 17 percent more different words than the DCH or HRW texts. Further, at the grade 3 level AW continues to show an increase in different words of 33 and 26 percent more than in the DCH and HRW texts respectively, a significant increase.

In view of the findings from Table 2, one might conjecture that a student who begins with the DCH or HRW series and later transfers into the AW program at the second or third grade levels, would have to contend with a sharp increase in the number of different words to be learned.

In addition to the variation in the number of different words between series and across grades, there is also a considerable number of new words within a given series. This is exemplified in the DCH series, wherein the total number of different words in common between grades one and two, and two and three, is 290 and 597 respectively. This means that 61.9 percent of all the second grade words, and similarly, 57.1 percent of all the third grade words were new words. These data suggest a possible problem in vocabulary usage in primary arithmetic series, in that a significant number of new words are introduced in each of the successive texts within a given series.

TABLE 3

FREQUENCY OF WORD REPETITION
BY GRADE WITHIN A SERIES

Series by Grade	Total Number Different Words	Word Repetition Intervals				
		101-1500	51-100	26-50	10-25	1-9
DCH-1	372	1.9%	3.8%	4.0%	14.8%	75.5%
HRW-1	424	1.1%	1.4%	1.9%	12.3%	83.3%
AW-1	364	0.5%	3.0%	7.7%	12.1%	76.6%
DCH-2	762	1.4%	2.2%	4.5%	11.7%	80.2%
HRW-2	763	2.2%	2.8%	5.5%	12.8%	76.7%
AW-2	917	0.9%	2.3%	4.5%	10.4%	82.0%
DCH-3	1 391	2.5%	3.6%	6.0%	13.1%	74.8%
HRW-3	1 540	2.9%	3.6%	5.8%	14.0%	73.6%
AW-3	2 075	2.6%	3.2%	5.4%	12.1%	76.7%

The data contained in Table 3 reveal that a scant number of words were repeated. The frequency interval (1 to 9) shows that a high percentage of words are repeated fewer than ten times. For example, in Heath Book I (DCH-1) which contains a total of 372 different words, 281 or 75.5 percent of these words are repeated fewer than ten times. This is an approximate ratio of 3:1 which means that for every four words a child encounters in this text, only one of four would be repeated ten or more times. Six of the nine textbooks have this approximate 3:1 ratio. The exceptions had even larger approximate ratios — HRW-1 and AW-2 had a ratio of 5:1, while HRW-2 had a ratio of 4:1.

TABLE 4

NUMBER OF COMMON AND UNIQUE WORDS
BY GRADE BETWEEN SERIES

	Grade 1		Grade 2		Grade 3	
	Number	%	Number	%	Number	%
Words Common to						
DCH, HRW, AW	121	15.9	271	17.8	695	23.2
DCH, HRW	183	24.1	412	27.0	800	26.7
DCH, AW	172	22.6	413	27.1	941	31.4
HRW, AW	166	21.8	364	23.9	962	32.1
Words Unique to						
DCH	138	18.2	208	13.6	345	11.5
HRW	196	25.8	258	16.9	473	15.8
AW	147	19.3	411	27.0	867	18.9

Note. The percentages are based on totals derived from Table 2.

The data included in Table 4 show that the words found in common between any two series at the first grade level did not exceed 24 percent. Similarly, there was only a slight increase in the percentage of words in common at the second and third grade levels, namely 27 percent and 32 percent respectively.

In viewing the combined series by grade, the percentage of overlap is even lower, 15.9 percent at the first grade, 17.8 percent at the second grade and 23.2 percent at the third grade levels. These data appear to indicate that there is a minimal vocabulary overlap by grade between series. Further, words which were not found to be in common, that is, the remaining or unique words, constituted high percentages including: (a) 63.3 percent of the first grade vocabulary of different words, (b) 57.5 percent of the second grade words, and (c) 56.2 percent of the third grade words. These findings are similar to those of Stauffer's study of over a decade ago (Stauffer, 1966, p. 146).

TABLE 5

NUMBER OF COMMON AND UNIQUE WORDS BETWEEN SERIES

Number	Series						
	[a]DCH + HRW + AW	DCH + HRW	DCH + AW	HRW + AW	DCH	HRW	AW
Common Words	848	987	1 106	1 139			
Unique Words					350	507	968
Percent	25.2	29.4	32.9	33.9	10.4	15.1	28.8

[a] Total number of different words = 3 361

Table 5 shows that there does not appear to be an appreciable difference in the number of words in common between any two series, or in the combined series. This is illustrated in the narrow percentage range of 29.4 to 33.9 for any two series, and 25.2 percent for the combined series.

There does, however, appear to be a considerable difference in the percentage of unique words found between series. The disparity between either the DCH or HRW series and the AW series is indeed great, 18.4 percent and 13.7 percent, respectively. Further, of the 3 361 different words of the combined three series, 1 536 or 45.7 percent were words common to two series, while 1 825 or 54.3 percent were unique words.

The above findings can be summarized as follows:

1. The total number of running words differ considerably between series. The DCH series has the least number of running words, while the AW series has the greatest number.
2. There was considerable increase in the number of running words found between the second and third grade texts, in each of the series.
3. The greatest disparity in the number of running words between any of the grade texts was found between DCH and AW.
4. The total number of running words does not appear to be a useful criterion in predicting the number of different words in these series.

5. The AW series contains a significantly larger number of different words than the other two series.
6. The AW third grade text contains a significantly higher number of different words than the third grade texts of either DCH or HRW.
7. Approximately 75 percent of the different words in any one series were not found to be repeated more than one to nine times.
8. Not a large number of different words were found to be common between series or grades in any specific series.
9. A list of 565 words were found to be common to two or more of the series (see Appendix).

Discussion and Implications

The results of this study indicate that the total number of running words and the total number of different words are essentially independent. In light of this finding, it is suggested that teachers involved in selecting primary prescribed arithmetic series for classroom or district use exercise caution in making assumptions with regard to the nature of vocabulary based solely on the number of running words as a criterion. It might also be suggested that provincial textbook selection committees take into consideration criteria which yield information concerning the degree of variability, overlapping, and vocabulary load inherent in primary arithmetic series. This information might, in turn, be disseminated to teachers to assist them in their classroom or district selection and in their classroom use.

Whereas in basal readers, vocabulary is generally carefully controlled and words are deliberately repeated many times, the data contained in this study revealed that at least 75 percent of the different words were repeated fewer than ten times in each of the texts. Teachers should therefore be alerted to the fact that this lack of repetition might present a potential problem for the unskilled and beginning reader.

Finally, in view of these findings, it might be suggested that primary teachers, curriculum consultants, arithmetic textbook selection committees, and authors of arithmetic series give careful consideration to the basic vocabulary demands implicit in present day arithmetic series.

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APPENDIX

Basic Comprehensive Primary Vocabulary List

The Basic Comprehensive Primary Vocabulary List (BCPVL) was compiled with the following purposes in mind:

1. To reflect the vocabulary contained in current modern and metricated arithmetic series (1973, 1975).

2. To develop a comprehensive arithmetic word list representative of *all* the words found to be common in two or more given arithmetic series.

The alphabetized BCPVL contained herein, consists of a total of 565 graded words including: (a) 164 first grade words, (b) 133 second grade words, and (c) 268 third grade words.

The list is comprised of words that are common to two or more of all the series. The majority (89.7 percent) are common to all three series; only a small percentage (10.3 percent) are common to exactly two of the series. The latter word set are identified by a single asterisk. Grade levels are assigned according to the first appearance of a word in a particular textbook; thus, no words are repeated at successive grades in the final list.

Basic Comprehensive Primary Vocabulary List

Note. Words identified by an asterisk were common to exactly two series, those without an asterisk were common to all three series.

Grade One

a	about	add	addend	addition
all	*an	and	are	*arm
as	*ball	bar	*bead	block
blue	*book	*boy	*calendar	can
*card	cent	centimetre	circle	*classroom
clip	color	*compare	count	*crayon
*desk	dime	*does	*dog	draw
each	eight	eighteen	*eighth	*eighty
eleven	equal	eraser	*face	fifteen
*fifth	fifty	fill	finish	*first
five	*foot	for	forty	four
fourteen	fourth	from	*girl	has
have	*height	hour	how	*hundred
I	in	*introduction	is	large
length	less	*like	line	*little
long	make	many	*mass	match
measure	*minus	missing	more	*my
*need	nine	nineteen	*ninety	*ninth
number	o'clock	of	on	one
or	order	out	paper	paste
pattern	*pencil	penny	picture	*plus
*project	put	*recognize	red	*review
ruler	*school	*second	set	*sequence
seven	seventeen	*seventh	*seventy	shape
*short	six	sixteen	sixty	*skip
small	*solid	some	*span	square
*stick	*story	*strip	subtract	table
tell	ten	*tenth	than	that
the	then	these	third	thirteen
thirty	this	three	time	to
twelve	twenty	two	use	way
we	what	which	*wide	will
with	you	your	zero	

Grade Two

am	amount	another	answer	any
apple	around	at	ate	away
back	be	big	bird	black
body	both	bowl	box	brown
*bubble	build	by	candy	car
cat	change	children	class	coin
complete	container	cookie	correct	cost
could	*cover	cream	cut	day
did	difference	different	do	dot
eat	enough	far	find	fish
fraction	get	go	got	grade
graph	*green	group	*gum	had
half	he	help	here	*high
if	it	keep	kilogram	know
left	litre	look	made	marble
me	metre	milk	minute	money
much	multiplication	name	*nickel	no
not	now	numeral	off	only

orange	other	over	people	point
problem	read	rectangle	*remember	room
row	same	see	she	shoe
show	small	so	*sort	space
spent	start	symmetry	take	tall
their	them	there	they	think
together	took	trace	triangle	up
walk	want	water	were	when
*word	write	zoo		

Grade Three

above	across	after	again	ago
airplane	along	also	always	among
animal	apart	area	arithmetic	arrow
bag	baseball	basic	been	before
begin	below	best	between	bicycle
birthday	bottle	bought	brother	bundle
bus	but	buy	call	came
carefully	carton	centre	chalkboard	chapter
chart	check	child	chocolate	close
code	collect	column	come	continue
copy	corner	cross	cube	cup
design	distance	divide	division	doll
dollar	done	door	down	dozen
drive	during	easy	edge	egg
empty	end	estimate	even	exact
example	exercise	fact	factor	family
father	favorite	few	figure	fit
fold	follow	found	fruit	gain
game	gave	geometry	give	glass
gram	great	guess	hand	happy
head	her	hill	him	his
hold	home	information	inside	into
it	jar	join	jump	just
kilometre	knife	last	late	learn
least	leg	letter	library	list
loop	lost	lot	lunch	machine
magic	mark	math	mean	member
might	model	month	most	mother
multiple	must	near	new	newspaper
next	notebook	object	odd	old
once	open	outside	own	pack
package	page	paid	paint	pair
part	path	pay	per	person
pick	pie	piece	pile	place
plane	play	pop	possible	practice
price	product	puzzle	quarter	question
reach	really	record	remainder	right
roll	round	rule	run	save
say	scale	score	sell	sentence
several	shade	sheet	shirt	should
side	sigh	sister	size	sold
solve	special	speed	spend	sphere
stamp	stand	star	still	store
string	study	sum	sure	swim
symbol	tape	teacher	telephone	temperature
thick	thin	thing	those	thousand
through	tile	top	total	travel
trip	true	try	turn	twice
under	unit	until	us	value

very	volume	was	watch	week
weigh	well	went	wheel	where
whether	white	who	why	width
window	wish	without	work	would
wrong	year	yellow		

The Alberta Journal of Educational Research *Vol. XXVII, No. 2, June, 1981*

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Judging Global Readability

Estimating readability, the difficulty of reading materials, is an important teacher function. This study addressed the problem of judging global readability through the matching of passages with unknown difficulty to criterion sets of passages with known readability. Forty-two teachers with 2-20 years of experience rated a set of passages by two global readability techniques—the SEER and the Rauding procedures.

The findings indicated that the two procedures resulted in significantly different ratings, that the amount of teaching experience did not affect the ratings, and that the SEER ratings agreed substantially with readability formula estimates of the same passages.

Estimating the difficulty of reading materials is an important teacher function, since it is the primary method used for matching readers and materials. Readability procedures have varied from detailed (Dale-Chall, 1948; Spache, 1953; Bormuth, 1966) to simple (Fry, 1968; McLaughlin, 1969; Raygor, 1977; Baldwin & Kaufman, 1979) to linguistic (Granowsky & Botel, 1974) to global (Carver, 1975-76; Singer, 1975), and each procedure has claimed either reliability, validity, or calculation ease as an advantage. Depending on the purpose of the readability rating and the number of raters available, the global method may be a viable one.

Global readability estimates involve the matching of materials with unknown readability to a criterion set of passages with known readability (but which typically have been calculated by one or more formulas). After selecting the closest passage on the criterion set, the same readability figure is assigned to the passage with the unknown difficulty. This matching technique has been used in the rating of handwriting samples for many decades. Global ratings also have the possibility of taking into account ideational difficulty which the formulas cannot. However, global ratings do depend heavily on the reliability of the rater.

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Because of the validity and the calculation ease reported by two global readability procedures, the Rauding Scale (Carver, 1976) and the SEER technique (Singer, 1975), this study sought to examine the utility of these two procedures for the classroom teacher. More specifically, the questions asked by this study were:

1. Are the mean ratings using the Rauding and the SEER technique practically and statistically in reasonable agreement?
2. Do teachers with varying amounts of teaching experience rate passages differently?
3. How do Rauding and SEER ratings compare with ratings based on the Spache or Dale-Chall formula?

Sample

The 42 teachers enrolled in a fifth-year level university reading course who had completed both sets of ratings were included in the study. Their teaching experience ranged from two to twenty years and the following frequency distribution was used in the analysis:

Experience in Years	Frequency
2	5
3	7
4	7
5	4
6 - 10	8
11 - 15	7
16 - 20	4

A 2 1/2 - hour lecture on the topic of readability had preceded the rating sessions. The lecture included information about the development of readability formulas, factors of readability, accuracy of the formulas, sources of readability information and special areas of concern (i.e. content areas, examinations). In addition each teacher was required to calculate the readability of a textbook and a tradebook using the Spache formula for primary level materials and the Dale-Chall formula for the intermediate levels and above. Information about the Rauding and the SEER techniques was presented as part of the above mentioned lecture.

Methodology

The eight passages were taken from Singer's (1975) "unknown paragraphs" but rearranged randomly in two ways (6, 8, 2, 5, 7, 3, 1, 4, and 7, 4, 6, 5, 1, 8, 3, 2) so as to make two forms. An answer sheet with blanks numbered one to eight was provided along with the passages and the criterion passages.

Directions to teachers followed the instructions given by Singer and by Carver in their respective journal articles except that only one rating was possible for each passage rather than the three suggested by Carver. (The reader could take the means in Table 1 as better predictors if desired.) In short, teachers read the sample passages and compared them to the criterion passages as provided by Singer and Carver.

One week the teachers were asked to rate the passages by the SEER technique, the next week by the Rauding index. It was recognized that order effect could not be ruled out by this procedure; however, it was not considered to be an important factor. The readability ratings for the eight passages using the Spache or Dale-Chall formula were reported to be: 1, 4.8; 2, 6.4; 3, 2.1; 4, 4.5; 5, 5.9; 6, 3.0; 7, 1.8; 8, 3.8. An SOL factorial analysis of variance program which could handle unequal replications per cell was used to analyze the data.

Findings

Table 1 presents the mean rating for the SEER and the Rauding techniques. The ANOVA results in Table 2 indicate that except for passage #4 (Original paragraph beginning: Several times. . .) all the remaining passages had statistically significant different ratings by the two techniques.

TABLE 1

MEAN PASSAGE READABILITY RATINGS BY TEACHERS
WITH VARYING AMOUNTS OF EXPERIENCE

Passage	Formula	Experience in Years							Weighted Means
		2	3	4	5	6-10	11-15	16-20	
1	S	4.44	4.00	4.13	4.33	4.15	4.21	4.40	4.20
	R	1.40	1.57	1.57	2.75	1.13	2.29	1.50	1.65
2	S	5.34	5.57	5.34	5.10	6.46	5.24	6.00	5.62
	R	1.60	1.86	2.71	2.50	1.75	2.29	1.25	2.02
3	S	1.90	2.16	1.57	1.68	2.16	1.79	4.25	2.12
	R	4.75	4.57	5.29	4.00	5.75	4.29	4.25	4.80
4	S	4.08	5.34	4.19	5.43	4.66	4.60	4.98	4.72
	R	4.68	4.71	5.29	5.25	4.38	4.71	4.50	4.77
5	S	4.30	4.43	5.41	4.78	5.14	4.61	4.18	4.75
	R	1.80	2.00	2.71	2.25	2.38	3.00	2.50	2.41
6	S	2.06	2.47	2.70	2.48	2.81	2.47	2.80	2.56
	R	3.00	4.14	4.57	3.75	4.38	4.00	4.50	4.10
7	S	2.64	2.46	2.54	2.55	2.21	2.34	2.10	2.40
	R	5.40	5.71	7.14	6.00	6.00	5.43	5.25	5.90
8	S	4.48	5.23	5.40	5.03	4.93	5.11	5.38	5.09
	R	4.00	4.29	4.86	4.75	4.25	4.43	3.75	4.36

The answer to the first question is therefore: No, the Rauding and the SEER technique do not result in similar readability ratings, neither in a statistical nor in a practical sense.

A rank order correlation of -0.548 was found between the SEER and Rauding ratings; 0.881 between the SEER and the Spache/Dale-Chall ratings; and -0.762 between the Rauding and the Spache/Dale-Chall ratings when mean ratings for all eight passages were considered. This comparison is perhaps the fairer one to the Rauding procedure since it suggests using the average of three ratings as a means of establishing grade difficulty.

The second question dealt with differences in ratings by teachers with varying amount of experience. Table 2 indicates that ANOVA results are not significant for any of the eight passages rated. The amount of teaching experience does not appear to affect the accuracy of the ratings in a statistically significant fashion. This conclusion is further supported by the fact that no significant interaction effects were found between the amount of teaching experience and the formula used.

TABLE 2

ANALYSIS OF VARIANCE RESULTS BY PASSAGE

	Passage							
	1	2	3	4	5	6	7	8
Formula (df=1,70)	114.53**	170.47**	172.66**	0.02	98.55*	39.00**	241.58*	7.89*
Experience (df=6,70)	0.98	0.37	3.91	0.73	1.37	1.56	1.57	0.63
Interaction (df=6,70)	0.84	1.56	6.04	0.68	0.59	0.24	1.05	0.39

* significant at .05 level

* * significant at .01 level

Do the global readability ratings compare favourably with the readability predictions from the Spache/Dale-Chall formulas? Table 1 lists means (the mean rating of all 42 subjects for each passage) and the Spache or Dale-Chall ratings were given earlier in the text. Even a visual inspection reveals a reasonably close relationship between the SEER and the Spache/Dale-Chall ratings (*rho* = 0.881). The Rauding ratings appear to result in a reciprocal ordering (*rho* = -0.762).

The answer to the last question depends somewhat on which criterion variable one is willing to accept. If the Spache/Dale-Chall ratings are chosen, the SEER technique is in most agreement. However, the dangers in accepting Spache/Dale-Chall ratings have been discussed elsewhere (Froese, 1975).

Discussion and Conclusions

Since this study examined only the ratings of eight passages it cannot be considered representative of rating all types of materials. However it may be said that the SEER and the Rauding technique do not produce similar ratings on these passages. It should be noted, however, that the range of passages is small (1.8 to 6.4) and hence the ability of either technique to rank a wide range of materials is not known.

There appears to be little difference in the ratings of beginning or experienced teachers, and neither technique seems to favour a particular experience level group in a statistically significant manner. However, more guided practice in making readability estimates might well result in better judgements.

If the Spache and Dale-Chall formulas are accepted as the criterion variable, then the SEER ratings are highly correlated (*rho* = 0.881), and appear to be a reasonable alternative *if several raters are employed.* The ratings of individual passages vary considerably (a visual inspection indicates that a standard deviation of approximately 1.5 is rather typical) and hence it remains to be shown that reasonable consistency may be maintained for a single rating of a particular passage.

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The Alberta Journal of Educational Research *Vol. XXVII, No. 2, June, 1981*

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Word Associated Arousal as an Encoding Dimension in Short Term Memory

This study employed the Wickens, Born and Allen (1963) release from proactive interference experimental paradigm. A significant amount of release from proactive interference was obtained by shifting between differentially arousing categories of words. This finding suggested that rated word arousal is an encoding dimension in short term memory. The stimulus words were then rated by a semantic differential type procedure of the Osgood, Suci, and Tannenbaum (1957) variety in order to locate the word arousal dimension within semantic space as it is defined by the Activity, Potency, and Evaluation factors.

The notion that motivation can affect retention has been extensively studied (Berlyne, 1967; Rapaport, 1942 ; Weiner, 1966). Unfortunately, the multiplicity of motivational theories (cf. Berlyne, 1967; Cofer & Appley, 1964), the fragmented nature of much of the research, and the equivocal nature of many of the studies (cf. Berlyne, 1967; Weiner, 1966) appears to preclude a clear statement of the specific relationship between motivation and retention. In a comprehensive review, Weiner (1966) concluded that in spite of these shortcomings and other more specific methodological weaknesses, there exists substantial evidence that memory is in fact influenced by motivation.

Arousal, traditionally regarded as a motivational variable, has been found to influence memory, although there is not general agreement on how it does so (Berlyne, 1967; Weiner, 1966). The preponderance of the evidence suggests that higher levels of

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arousal facilitate long term retention (Berlyne, 1967; Osborne, 1971). That arousal affects short term recall has been well established, but the directionality of the effect remains unclear. Osborne (1971), in a review of this question, concluded that the weight of the evidence indicates that arousal facilitates short term retention but that considerable evidence to the contrary also exists. In addition, some studies have shown arousal to have no effect upon short term retention (Berlyne, Borsa, Craw, Gelman & Mandell, 1965). The unclear nature of the relationship between arousal and memory appears partly to reflect the confused state of the relationship between motivation and memory in general.

Further, there appears to be uncertainty as to whether the effects of arousal and other motivational factors reflect the degree of original learning, the degree of retention, or the degree of subsequent recall (Weiner, 1966; Underwood, 1964). Indeed, many studies have failed to make these distinctions, in that motivational components were manipulated at the time of the stimulus presentation followed by measurement of the degree of stimulus recall (Weiner, 1966). Other studies have manipulated the arousal variable only during retrieval (Weiner, 1966). Without the experimental separation of learning and retention, the two variables become confounded. As a result, no definitive conclusions can be drawn about the relationships between arousal and learning and between arousal and recall (Weiner, 1966). It should be noted that some researchers, such as Underwood (1964), have maintained that it is impossible to determine whether motivation affects retention directly or indirectly through its influence on learning.

The identification of a specific relationship between arousal and learning, or between arousal and recall, would help to clarify a number of the uncertainties discussed above. For example, if arousal were found to function strongly as a learning or encoding variable, Berlyne's (1967) suggestion that arousal can function by triggering a specific class of learned or innate behaviour would be supported. Such a finding would neither counter nor weaken the concept of arousal as a nonspecific and indiscriminate motivational variable, in that if arousal is a bonafide psychophysical variable, then high arousal words could have a nonspecific, activity increasing, performance strengthening function as well as a specific learning or encoding function.

The identification of arousal as a learning variable would suggest a re-evaluation of many of the studies which have failed to make the distinction between learning and recall components. In many of these cases more post hoc emphasis could be placed upon learning and less upon recall mechanisms. Such a re-evaluation should help to clarify further the relationship between arousal and memory.

The primary purpose of this study was to investigate word arousal as an encoding dimension in STM by using a release from Proactive Interference (PI) experimental design of the Wickens, Born and Allen (1963) variety.

Experiment One

The release from proactive interference (PI) experimental paradigm (Wickens, 1970, 1972) has been used widely as an empirical means of identifying the dimensions along which items are encoded in short term memory (STM). Experimentally, a progressive decrement in recall of items in sequentially presented word triads drawn from the same semantic category (PI) is followed by an improvement in performance upon the presentation of a word triad drawn from a different semantic category (release from PI). This result suggests that the two semantic categories are encoded

separately in STM. Because this experimental paradigm is widely regarded as an input phenomenon (cf. Wickens, 1970), it was used in this study to identify arousal as an input and, hence, learning variable.

Appropriate to the release from PI experimental design, categories of differentially arousing words were used as arousal determinants. Although words that have been rated on an a priori basis as differentially arousing have been used successfully as arousal determinants in a number of other arousal and memory studies (Osborne, 1972, 1973; Maltzman, Kantor & Langdon, 1966; Kleinsmith & Kaplan, 1963, 1964; Walker & Tarte, 1963), it should be noted that the use of rated words as arousal determinants essentially constitutes an operational definition of arousal and represents a departure from the physiological perspective.

Method

Subjects. The subjects were 96 male and female University of Alberta undergraduate students from Educational Psychology courses. All students who participated received course credit as well as payment. Two subjects were replaced, one for failure to follow instructions, and one for previously undisclosed memory improvement training. None of the subjects had previously taken part in any psychological experiments.

Materials. Osborne (1972) chose 40 nouns from the 925 nouns listed by Pavio, Yuille, and Madigan (1968) on the basis that they be equated for mean imagery and frequency, but differ maximally on arousal. These were subsequently rated for arousal on a seven-point scale, using a procedure similar to that of Pavio et al. (1968), by 218 volunteers from an Educational Psychology course at the University of Alberta. From these 40 nouns, the experimenter chose 12 low arousal (harp, cigar, ankle, hurdle, fiord, banner, caravan, appliance, leaflet, hamlet, toast, juggler) and 12 high arousal (policemen, volcano, agony, alcohol, brute, skull, avalanche, morgue, ghost, disaster, snake, jail) nouns for the present study. The choices were made on the basis of maximal discrimination of low and high rated arousal levels and minimum potential for mnemonic association. They were then grouped into triads which the experimenter again chose so as to minimize mnemonic association (e.g., not policemen, handcuffs , jail but policeman, volcano, ghost). Because similarity of word sounds may affect interference (Conrad, 1964; Wickelgren, 1965), no similar sounding words were included in any one triad.

Procedure. All slide sequences were projected with a carousel AV 900 projector, which was controlled by a Sony 630 reel-to-reel tape deck timer. All instructions were videotaped and presented to the subjects on a remote controlled videotape monitor.

Each subject entered the experimental room and was seated. Personal data were obtained, and then the subject viewed a standard set of videotaped instructions. The mechanics of the experimental situation, as well as the performance required of the subject, were explained and the videotape was stopped. If the subject had any questions, they were answered and the experiment began.

In general, the format of the procedure was as similar as possible to the Wickens (1972) procedure. That is, all materials were projected on a screen about 1.5m in front of the subject. An asterisk attention signal appeared for 2 seconds. It was replaced by the first word triad which appeared for about 1.5 seconds. The subject repeated the words once in order to expose perceptual or processing errors. A three-digit number slide appeared, and the subject began immediately to count backwards, by threes, from the displayed number as rapidly as possible for 15 seconds. The number was replaced by a question mark and the subject had 10 seconds to recall as many of the three words

as he could remember before the question mark disappeared. After a rest interval of 6 seconds, an asterisk appeared for 2 seconds as a ready signal for the second triad. The experiment proceeded thus for three triads during which the subjects saw words from only one arousal category (high or low).

On the fourth trial, the experimental group was presented with words from the other category (i.e., the previously low arousal group now saw a high arousal triad and vice versa). An equal number of subjects changed from low arousal words to high arousal words as changed from high arousal words to low arousal words. The control groups saw all four word triads only from within the same category (i.e. , either all low arousal words or all high arousal words). In order to identify subjects who attempted to facilitate word rehearsal by lessening their concentration on the distractor task, both the rate of counting and the number of errors in counting were recorded during each distractor task.

Design. The stimulus words were distributed in all groups by using a counterbalancing rotation system so that each word occurred in each position of each triad an equal number of times throughout the experiment. Each triad occurred in each possible trial position an equal number of times. Because of this rotation system, each word occurred in each possible trial position two times during the experiment. In no case for the second presentation of any given word was the word above or below it in the same position as in the first presentation. Exactly the same procedure was adopted with the high arousal words as with the low arousal words. The low to high experimental (shift) group was made by removing the fourth trial row from the low control group and replacing it with the fourth trial row from the high control group. The high to low experimental (shift) group was made up in a similar fashion.

There were 48 subjects in each experimental and control group. That is, the overall "experimental" group was composed of 24 people who viewed a high to low arousal shift and 24 people who viewed a low to high arousal shift. Similarly the overall control group was composed of 24 people who viewed high arousal words only and 24 people who viewed low arousal words only. All subjects were randomly assigned to experimental positions. The distractor task subtraction numbers were counterbalanced so that the same numbers did not appear in the same ordered position throughout the experiment.

Results and Discussion

Responses were scored as correct when they were given within the recall interval of the trial on which they occurred and without regard to the original order of the words. In the manner suggested by Wickens (1970), both the non-shift groups were combined to form a single control group and both the shift groups were combined to form a single experimental group. This combination of groups was possible because the shift from high arousal to low arousal produced the same amount of release as the shift from low arousal to high. Similarly, no difference in performance was found between the two control groups.

Figure 1 presents the percentage of correct recall at each trial for these combined experimental and control groups.

A t test for independent groups with equal numbers indicated a significant difference, $t\ (87) = 6.62$, $p < .001$, in performance on Trial 4 between the experimental and the control groups. A t test for dependent groups indicated a significant difference, $t\ (47) = 6.08$, $p < .001$, between performance on Trial 3 and on Trial 4 for the experimental group.

These results may also be reported by using the standard Wickens' (1970) method of quantifying release from PI, in which case the release from PI obtained in this study is 61%.

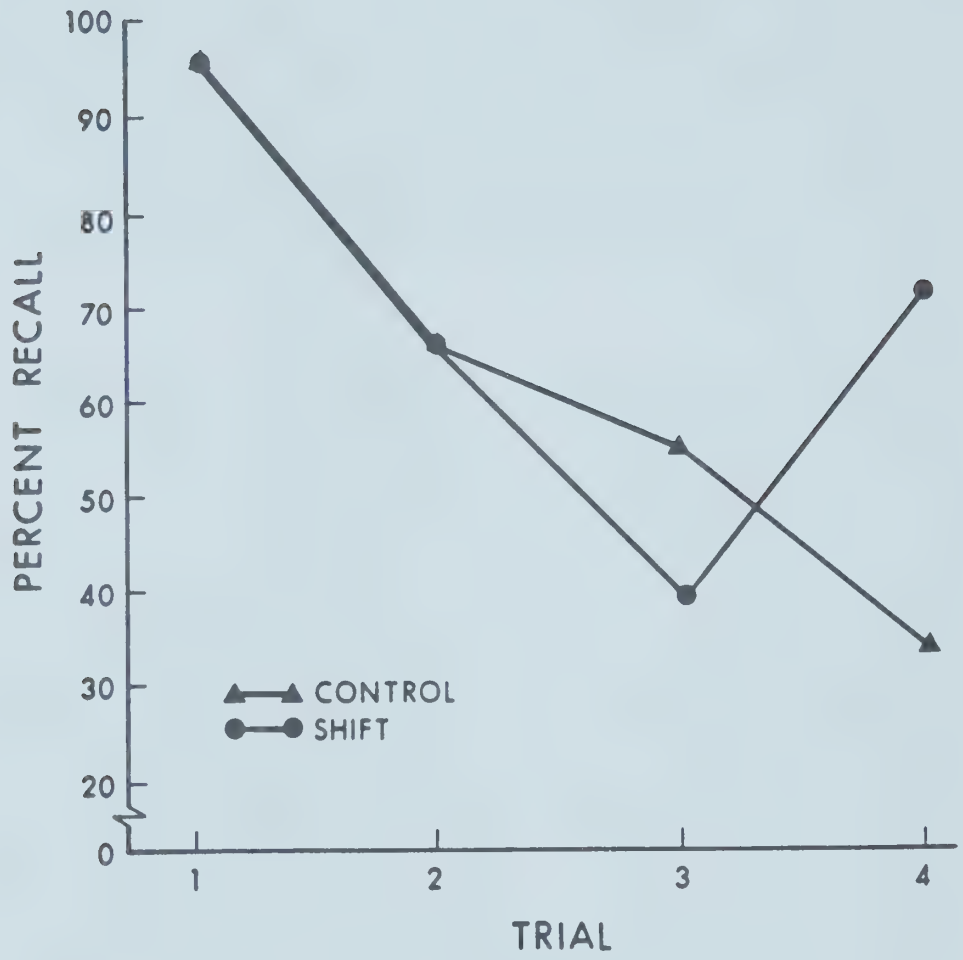

Figure 1. Percent recall from short term memory by the combined control group and shift group.

The results show the usual PI effects found on similar positive experiments (Loess, 1967;Wickens, 1970; Wickens, Born & Allen, 1963). A progressive decrement in performance occurred over the first three trials for both groups and was followed, on the fourth trial, by a marked increase in performance by the experimental group and a further decrement in performance by the control group. The rapidity and the amount of the preshift PI buildup, together with the shift contingent change in performance, indicate that the high and low arousal categories represent specific homogeneous classes of material with respect to at least some portion of their underlying meaning or the psychological processes representing that portion. The fact, as well as the magnitude of the effect, suggest that word associated arousal, an operationally derived intervening variable, functions as a semantic encoding dimension in STM and hence as a learning variable in studies of the relationship between word determined arousal and memory.

TABLE 1

MEANS AND DIFFERENCES OF THE EVALUATION, ACTIVITY AND POTENCY COMPONENTS OF THE AROUSAL CATEGORIES

Component	High Arousal	Low Arousal	Difference
Evaluation	3.23	4.74	1.51
Activity	5.32	4.62	.70
Potency	5.17	4.08	1.09

Experiment Two

It may be recalled that the release from PI experimental design is predicated upon the assumption that word meaning resides within a collection of many encoding dimensions in STM. One implication of this multidimensional conceptualization of memory is that most, if not all, words could be considered to have a number of different component values along more than one of these different dimensions (Wickens, 1970, 1972). That is, the meaning of a specific given word would be found in the quantitative degree to which it was encoded along a multiplicity of different dimensions. Osborne and Frankiewicz (1972), in a factor analytic study of high and low arousal words, considered the question of whether rated arousal is a distinct attribute of words or whether it is subsumed by other word attributes such as the Evaluation, Potency, and Activity factors reported by Osgood et al. (1957), and concluded that arousal is negatively evaluated and partly subsumed by the Activity factor.

Subsequent to the completion of the release from PI experiment, the high and low arousal stimulus words were used as the concepts to be rated in a semantic differential type procedure. The administration of the semantic differential followed exactly the procedures outlined by Osgood et al. (1957) in terms of scale construction, form of the differential (Form II design), and instructions to the subjects. The subjects were 25 student nurse volunteers from the University of Alberta Hospital.

Table 1 presents the obtained means for, and differences between, the high and low arousal categories for each of the semantic components. Inspection of Table 1 shows that the high arousal category was negatively evaluated, strongly active, and potent. The low arousal category was positively evaluated, active, and neutral with regard to potency. These data are consistent with the Osborne and Frankiewicz (1972) results.

In general, Wickens (1970) and others have found that a release from PI of 60% or greater usually is obtained only along semantic dimensions (which includes changing the language of the symbol) and when the requirements of maximal polarity and homogeneity exist for the particular semantic dimension employed. In the present study, words were not chosen to be homogeneous or to maximize polarity along the activity, potency, or evaluation dimensions. This is reflected in the range of the rating means along each dimension as shown in Table 1. It is apparent that the range is low and clearly nonpolar in all cases. Thus, it seems unlikely that any of the above dimensions accounted for the release from PI obtained in this study. The most probable explanation of the release from PI obtained in the present study is that word arousal is a significant encoding dimension which exists within semantic space.

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The Alberta Journal of Educational Research *Vol. XXVII, No. 2, June, 1981*

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Another Look at Personality Motivation and Second Language Learning in a Bilingual Context

Research and theory elaborated by Gardner specify the importance of motivation to second language acquisition and interpret the role of specific attitudes and orientations, including the integrative and instrumental orientations, to be supports of motivational intensity. In order to analyse some of the more intricate processes in second language acquisition, the objective of the present study was to examine relationships, deduced from theories, between the two orientations referred to and the personality measures known as psychological differentiation (field dependence/independence) and dogmatism. Data were observed from a sample of 414 Ontario students learning French. Analyses of variance supported three of four hypotheses. It was found that significant differences ($p < .01$ and $p < .00$) exist on the integrative and instrumental orientations in favour of extreme field dependent and extreme dogmatic students, respectively. However, there were no significant differences on the integrative and instrumental orientations for dogmatism and psychological differentiation, respectively. Differential treatment, during second language teaching, of the personality types discussed is therefore suggested.

Gardner[1] has stated that motivation is a major predictor of achievement in French as a second language and that it is the single best predictor of both "Grades in French" and "Behavioural Intention to Continue Studying French." Other reports (e.g., Gardner & Lambert, 1972; Gardner & Smythe, 1975) quote evidence of the importance of motivation to second language acquisition. Gardner (1978) states further that specific orientations and attitudes act as motivational supports during the language acquisition process. These findings have prompted examination by the present author of some of the subterranean dynamics of motivation, for example, examination of personality variables which may significantly predispose the learner toward motivational orientations which have proven relevant to second language learning. The

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intention in this study, therefore, was to attempt clarification of the motivational orientations of field dependent/independent persons (Witkin, Dyk, Faterson, Goodenough & Karp, 1972) in the second language acquisition context as well as to carry out empirical review of dogmatism (Rokeach, 1960) as a possible source of specific motivational orientations in second language learning. The study and the implications of results found are currently confined to the acquisition of French in Canadian bilingual settings where French residents are in the minority.

The two motivational variables which have received outstanding analytical treatment by Gardner and his associates are the integrative orientation and the instrumental orientation towards second language learning. The integrative orientation may be summarized as the desire to identify with the members of the second language group and its culture and possibly to become a member of the group. It may be regarded as a total psychological outreach towards the second language group. On the other hand, the instrumental orientation implies a utilitarian approach to the learning of the second language as a means of improving one's status or embracing career opportunities.

These orientations are reported to have correlated positively with aspects of second language achievement, depending on the language of focus and the sociocultural context, and/or to have loaded regularly on the attitudinal/motivational factor found to be related to achievement (e.g., Gardner, 1975; Gardner, 1978; Gardner & Santos, 1970; Gardner & Smythe, 1975; Lambert & Gardner, 1959; Lambert, Gardner, Barik & Tunstall, 1963; Lukmani, 1972; Spolsky, 1969). Such loadings have occurred almost consistently for English-speaking students, in Canadian bilingual cities, learning French (e.g., Gardner, 1960; Lambert, Gardner, Barik & Tunstall, 1963). Substantial mean correlations are quoted (Gardner, 1975) between the two orientations and "Behavioural Intention to Continue Studying French" for Anglophones across Canada learning French. Further, both orientations have been discussed by Gardner (1978) with respect to their precise role. They are now viewed as supports, to varying degrees, of motivation itself. Claims have been advanced concerning the interdependence of the integrative and instrumental orientations (e.g. Smythe, Stennett & Feenstra, 1972). However, the author considers these orientations to be sufficiently distinct both in nature and in import (Gardner, 1978) to merit separate analysis.

A third variable which has shown repeated evidence of a strong relationship with second language achievement is the integrative motive, an attitudinal complex which includes measures of the integrative orientation, positive affects such as positive attitudes towards the learning situation or the second language teacher and motivational intensity itself (Gardner & Smythe, 1975, pp. 7-12). As may be expected, the integrative approach to language acquisition is presented as the essential feature of this complex.

Recent enquiry (Chihara & Oller, 1978; Oller & Perkins, 1978) into the suitability of the Gardner-type questions for eliciting attitudinal/motivational information has been made. However, Chihara and Oller (1978) have reported that there does not appear to be any clear difference between the use of direct (Gardner-type) and indirect (Spolsky-type) questions in gathering attitude data. Oller and Perkins (1978) suggest sources of nonrandom, extraneous variance inherent to self-reported attitude data—namely, self-flattery, response set, and approval motive. No data supporting this claim have been brought forward. After careful examination of propositions made by the above authors, Gardner[2] concludes that they are unsupported and unjustified.

The present author is of the opinion that the extent of the evidence offered by Gardner et al. relevant to a relationship between attitudes/motivation and achievement in second language learning is impressive and merits further consideration in spite of incidental failure to find significant positive relationships.

The selection of degree of psychological differentiation (field dependence/independence) as an independent variable was based on recent specifications regarding the pervasive nature of this characteristic within several areas of psychological function (Witkin et al., 1972); for example, perceptual field independence is said to imply, within the social function, a high degree of independence and self-sufficiency. The concept of self-sufficiency or "self-non self segregation" now refers to social independence in situations which present ambiguity or information gaps rather than to social independence with respect to absence of need for emotional support, approval or attention (Witkin & Goodenough, 1976, p. 27). This "information-seeking" aspect of presence or absence of reliance on others is regarded by the present author as having possible relevance to second language acquisition.

Given the basic assumption in the literature that the field dependent person has a general predisposition to rely on the "field" of focus, it is anticipated that the extremely field dependent student will appropriate the integrative orientation as a task-specific expression of a basic personality need, that is, he is already disposed to assuming behaviours and characteristics of others. Further, the ambiguity inherent to the second language learning task in a *bilingual* situation may mean that the integrative orientation will assume paramount importance for this type of student. In such a context, where two cultural groups live in close contact, the field dependent student will be constantly faced with social "similarities" which retain subtle, indistinct differences if he is not sufficiently familiar with the second language group. He will therefore seek information through integration. Simultaneously, the urgency of the integrative orientation for the field dependent student may be expected to forestall the expression of a strong utilitarian "instrumental" approach. This suggestion is congruent with the explanation of instrumentality as that orientation which "deemphasized the interest in becoming closer to the other group and focused instead on what a knowledge of the language could do for the individual without involving him directly with the group" (Gardner, 1975, p. 25). Providing that the instrumental, utilitarian approach is prevalent in the society, however, there is some reason to expect a greater positive relationship between the instrumental orientation and field dependence than between the instrumental orientation and field independence. Significantly higher scores may also be expected for field dependent students on the integrative motive as a more complete and intensive expression of the integrative orientation.

The inclusion of dogmatism as the second independent variable was due in large part to previous failure to find a relationship between this variable and specific aspects of second language learning (Gayle, 1976; Koscielecki, 1979). Gardner and Lambert (1972) had previously hypothesized a negative relationship between authoritarianism and positive attitudes towards second language learning. On the basis of Rokeach's (1960) theory of dogmatism as a more general interpretation of authoritarianism, however, the present research paper assumes a relatively versatile applicability of dogmatism to motivational factors in second language learning. The attitudinal/motivational disposition of the socio-political "authority" in the in-group or the potency of a particular orientation in the in-group is seen as the determinant of the kind of relationship between authoritarianism and specific orientations, such as

the instrumental orientation, to second language learning. That is, once the authority regards second language learning as a utility, the closed-minded dogmatic person accepts this idea even if a negative attitude is maintained towards the members of the second language out-group themselves. This assertion is in keeping with Rokeach's interpretation of the "intermediate" region of the "central-peripheral dimension". On the other hand, the integrative orientation is thought to be relatively independent of the dogmatism factor. To the extent that integration is possible or necessary, the second language group will tend to be seen by the dogmatic person himself as one of a large number of out-groups which deserve his contempt. His feeling of antipathy may even be strong enough to neutralize possible encouragement given by the authority for integration and group participation.

Within the Ontario context from which the sample was taken, the attitudes of the authority have been assessed by the author as composite. The Federal Government has in recent years actively supported the integrative view within the Canadian population. The French minority group has been protected by the Official Languages Act of 1973. Residents have been encouraged to become bilingual, to familiarise themselves with the cultural values of the French and to preserve political unity. However, these overtones may be regarded as embellishments of a basically instrumental, utilitarian theme. The policy of political expediency adopted by the government has even been reflected, to some extent, in the instrumental bias of the general populace. Among members of the Civil Service, many have attempted to learn French as a second language in order to retain their jobs or to secure promotion. This situation has been extended to many other bilingual services.

With regard to the above assessment of the Ontario authority and to the psychological structures outlined in theory, the following hypotheses seemed valid within the present context—that (a) field dependent students would score significantly higher than field independent students on measures of the integrative orientation and the integrative motive, (b) field dependent students would also be significantly different from field independent students on the measure of instrumental orientation, (c) no significant difference would be found for high dogmatic/low dogmatic students on the integrative orientation and on the integrative motive, but (d) high dogmatic students would be significantly more instrumentally oriented.

Method

Sample

The sample, representing university undergraduates in bilingual areas of Ontario who were learning French as a second language, was comprised of 442 students. Only those students who described themselves as non-French and as second or third-generation Canadians resident in Ontario for at least 3 years (a total of 414) were retained. A non-French student was defined as having no significant competence in French as a second language and as living in a residence where French was not spoken.

Instruments

Three instruments were utilized in the collection of data—Thurstone's Closure Flexibility Test as a measure of field dependence/independence, Rokeach's Dogmatism Scale as a measure of general authoritarianism, and an attitude questionnaire reflecting a random presentation of items used by Gardner and Smythe

(1975) in the scales relevant to the integrative orientation, the instrumental orientation, motivational intensity, desire to learn French, attitudes towards learning the language, and attitudes towards the second language group.

High reliability figures are reported for the Thurstone Closure Flexibility Test (Thurstone, a split-half reliability of .78 and Pemberton, a corrected split-half reliability of .94). The test has been found to have a .77 correlation with Witkin's Embedded Figures Test (Podell & Phillips, 1959) and has been used by Witkin to measure field dependence/independence.

As an index of validity Rokeach reports a significant difference of 56.1 ($p = .01$) on the Dogmatism scale between subjects known to be very open and closed-minded. Corrected reliability measures for various British and American samples range from .68 to .93.

Kuder Richardson reliability coefficients and item-total correlations reported by Gardner and Smythe (1975) are generally satisfactory.

Procedure

With respect to the attitudinal battery, average standard scores based on five of the six scales referred to (excluding the instrumental orientation) were used as an index of the integrative motive. All scales inclusive of the instrumental orientation had been randomly presented in the same questionnaire.

Relationships expected were tested through a series of three 2 x 2 analyses of variance using the integrative orientation, the integrative motive, and the instrumental orientation as dependent variables. For the purpose of the analyses, selection was made of individuals having the 30% lowest and highest scores on psychological differentiation and dogmatism. Simple post hoc analyses of variance were conducted.

Results

The majority of the expected relationships outlined previously were confirmed by the results for main effects.

As predicted, Table 1 indicates that field dependent students reflected higher levels of integrative orientation and integrative motive than field independent students. A significant main effect was found for psychological differentiation on the integrative orientation ($F = 6.44$, $p<.01$) and on the integrative motive, ($F = 11.28$, $p<.00$). Contrary to expectations, no significant difference was found for field dependence/independence on the instrumental orientation. As hypothesized, no significant difference was found for high dogmatic/low dogmatic students on either the integrative orientation or the integrative motive. However, high dogmatic students scored higher than low dogmatics on the instrumental orientation (see Table 1) resulting in a significant main effect, ($F = 13.09, p<.00$).

There were no significant interaction effects on any of the three attitudinal measures. It may also be noted that, on the measure of the integrative motive alone, significant differences occurred between field dependent/independent students within subgroups for high and low dogmatics, $p<.05$ and $p<.01$, respectively.

All distributions for the three attitudinal and two personality measures included in the study were relatively normal (see Table 2). The highest measure of skewness was -1.61 for the distribution for dogmatism. Analyses of variance are therefore considered to have been reasonably valid.

TABLE 1

STATISTICS FOR SUBGROUPS IN THE SIMPLE POST HOC ANALYSES OF VARIANCE

	N	*Mean*	*S.D.*
Integrative Orientation			
F.D., Low D.	39	38.69	8.42
F.I., Low D.	42	35.02	9.59
F.D., High D.	29	41.38	8.82
F.I., High D.	36	37.72	7.73
Integrative Motive			
F.D., Low D.	39	.79[a]	4.03
F.I., Low D.	42	-1.59[a]	3.68
F.D., High D.	29	1.07[a]	4.59
F.I., High D.	36	-1.05[a]	4.06
Instrumental Orientation			
F.D., Low D.	39	31.10	7.27
F.I., Low D.	42	33.29	7.68
F.D., High D.	29	37.45	7.52
F.I., High D.	36	35.92	6.26

[a] Standard scores.

TABLE 2

DESCRIPTIVE STATISTICS FOR DISTRIBUTIONS

	M	*S.D.*	*Skewness*
Integrative Orientation	37.95	8.59	- .32
Integrative Motive	- .00[a]	4.06	- .50
Instrumental Orientation	34.23	7.39	- .22
Dogmatism	139.27	36.49	-1.61
F.D./F.I.	73.96	25.89	- .13

[a] Standard scores.

Discussion

Descriptive statistics quoted for each of the distributions and analyses of variance reported above support the view that the personality traits discussed in this study have some discriminative power for the second language acquisition process in the Canadian bilingual context when French, as the minority language, is the target language. Whereas field dependence appears to contribute to language acquisition by virtue of the integrative approach, high levels of dogmatism appear to increase the motivational drive for instrumental reasons.

The cause-effect interpretation implied in the previous sentence is supported by the content of the three theories under discussion taken together. On the one hand, Gardner's model and empirical examination of his model demonstrate that the integrative and instrumental orientations increase motivation which in turn leads to language acquisition. On the other hand, field dependence and dogmatism appear to be contributing predictors of the extent of the orientations referred to since both Witkin and Rokeach confirm the early emergence of the personality characteristics as a result of interaction with the childhood environment. Conceptually, it is difficult to see how the instrumental orientation to second language learning could lead to dogmatism or, for that matter, how the integrative orientation could precede the more general and early-appearing field dependent approach.

In terms of the rationale set out in the introduction to this study, the present finding for field dependence relevant to the integrative orientation/motive (exclusive of the instrumental orientation) suggests support to the theoretical proposition (Witkin & Goodenough, 1976, p. 27) that the field dependent person's penchant for relying on others as a source of information in ambiguous situations provides the overriding difference between himself and field independent persons during social interaction. Certainly, the importance of the ambiguity of the bilingual context to the second language learning process is an interesting supposition which merits closer examination in this and in other respects. At this point, however, it is safer to conclude that the ambiguity of the second language learning field is one of many possible reasons for the difference found between field dependent/independent persons on the integrative dimension.

The failure of significant differences to emerge on the instrumental orientation between extremely field dependent and field independent students is surprising. This may be due to the greater prevalence of the integrative feeling within the general English population, in spite of the basic utilitarian attitude of the Federal Government, and the consequent attractiveness of the integrative point of view to the dependent person.

As an additional evaluation of Witkin's differentiation construct relevant to second language learning, it appears that field dependence per se may be more consequential than dogmatism to second language learning in those Canadian bilingual areas under discussion. This deduction is made since Gardner (1978) had previously affirmed the relative non-importance of the instrumental orientation to the second language learning process in Canadian bilingual and monolingual settings, although correlations as high as .34, $p < .01$, between the instrumental scale and motivational intensity were reported.

It should be pointed out that statistical analyses adopted in this study involved the use of extreme scores on the personality measures. This selective approach, however, was considered rational and in keeping with theoretical distinctions. Strong correlations were not expected between entire distributions for the personality and motivation variables. In the case of field independent students, for example, only

extreme scorers were predicted to portray the kind of isolationism which could militate effectively against integrative behaviour (Witkin et al., 1972, pp. 174, 175). Similarly, the student scoring near the midpoint on the dogmatism scale could be expected to have mixed, ambivalent, or unpredictable reactions to the instrumental orientation, particularly in view of the interdependence between this variable and the integrative orientation in interpretation (Smythe, Stennett & Feenstra, 1972). At the extreme dogmatic end of the scale, however, where the individual tends to see the outgroup as "anathema," the instrumental expression may quite easily become the only option and may be experienced and interpreted in a clear-cut manner. Results confirmed that correlations between field independence and the three dependent variables and between dogmatism and the dependent variables were in no case higher than -.13 and .09, respectively. However, the direction of the correlations was consistently supportive of the kinds of differences hypothesized previously for extreme scorers on the independent variables.

In general, data indicate, therefore, that the roles of field dependence and dogmatism within the psychological dynamics of second language acquisition are neither negative nor negligible. Further studies should be carried out on a comparative basis in order to determine, for example, whether field dependence retains a significant effect on the integrative orientation in a non-ambiguous monolingual setting. In addition, the question of whether or not similar submotivational relationships would be discovered in different bilingual circumstances is of interest. For example, what might be the relationship between dogmatism and the instrumental orientation in cases where English, as the minority language, is being learned by members of the French majority group? Sociological and political issues which have developed over the years suggest that relevant findings in regions of Quebec, for example, may be quite different.

The implications of the present findings for educational practice are obvious. They also defy disregard. It would appear that, in the Canadian bilingual setting where French is being taught to members of the English majority group, teachers must not only be aware of the relative effects of distinct motivations in second language learning but, in their attempt to reinforce attitudes and motivations, they must also be sensitive to the nature and personality of the student being taught. Shifts in emphasis or overemphasis of particular orientations may be either acceptable, unimportant, or threatening to the individual student.

Second language learning theorists and researchers have intimated often in recent years that personality is of some consequence, direct or indirect, in the acquisition of the language. The present study has demonstrated certain subtleties in an indirect relationship between personality extremes and language learning as these relationships have been observed in a bilingual context. Given the complexity of human psychological function, knowledge of such intricate dynamics should be most useful and challenging to the second language teacher.

Notes

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A Longitudinal Study of Grade III Achievement in Edmonton Public Schools

The conception of this study occurred in response to public concern of whether or not children enrolled in grade 3 in 1977 acquired the same level of academic achievement as did children 21 years ago. In order to investigate this question, the results of a battery of achievement tests administered to students enrolled in grade 3 in the Edmonton Public School system in 1956 (N=3 570)[1] were compared to the results of the same test battery (corrected for item bias due to social change across time) administered to students enrolled in grade 3 in the Edmonton Public School system in 1977 (N=4400)[1]. The results from this study indicated that the overall level of grade 3 communication skills had increased from 1956 to 1977 while mathematical skills had decreased slightly. It was noted that the decline in mathematics scores was not general, but related to items in specific areas, such as the Roman numerals. It was pointed out, also, that the 1977 grade 3 students averaged 1.72 months younger than their 1956 counterparts.

For several years there has been a growing criticism of student achievement in Alberta as well as in other parts of Canada. Newspapers and periodicals have frequently expressed complaints, usually undocumented, that basic skills are unsatisfactory and that they have deteriorated in recent years (Canadian Chamber of Commerce Education Committee, 1975; Saint John's Edmonton Report, 1976; Gray, 1975; Edmonton Journal, 1975). Research studies have reported mixed findings. Student achievement declines were reported by Muir (1961) and Alberta Education, Red Deer Regional Office (1976), while Hedges (1977) reported general improvement with the exception of arithmetic computation and arithmetic reasoning. The Nova

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Scotia Department of Education (1976, 1977) reported higher performance in all academic skills with the exception of some areas of mathematics.

A study was conducted for the purpose of comparing grade three achievement standards in Edmonton in 1977 with achievement standards obtained in 1956. This study was carried out through the Alberta Advisory Committee on Educational Studies and funded by Alberta Education. The project, referred to as the Edmonton Study, involved all grade three classes in the Edmonton Public School system in 1956 and 1977. Comparisons for the Edmonton Study were made possible by the fact that an extensive battery of tests had been administered to grade three pupils in Edmonton public schools in 1956, and that the test booklets with the students' answers had been retained. A re-administration of the test battery was then required in order to determine overall gains or losses in those levels of achievement measured by the test battery. Full details regarding this study are documented in two reports published by Alberta Education (Clarke, Nyberg & Worth, 1977,1978).

Procedure

The general procedure employed in the study was to administer, in 1977, the same battery of tests that had been given in 1956 to the grade three pupils enrolled in the Edmonton public school system. Testing conditions regarding such matters as time of year, testing instruments employed, and testing personnel were duplicated in 1977 as far as possible. In addition, uniformity of standards in scoring was ensured by having the 1956 tests re-scored by the same people charged with the task of scoring the 1977 test booklets.

The tests employed in the Edmonton Study were as follows:

1. *California Achievement Tests Complete Battery* Primary Form CC, 1950 Edition.
2. *California Short Form Test of Mental Maturity* Primary S-Form, 1953 Edition.
3. *Gates Advanced Primary Reading Tests* Form I, Type I Word Recognition 1942 Edition.
4. *Gates Advanced Primary Reading Tests* Form I, Type II Paragraph Reading, 1942 Edition.
5. *Raven Progressive Matrices* 1947 Sets A, A_B, B.

All of the tests, with the exception of the Progressive Matrices, were out of print in 1977, therefore special permission was obtained from the test publishers to reprint them at the University of Alberta.

Testing was conducted, in both 1956 and 1977, by university students and by the grade three classroom teachers. The teachers administered the California Achievement Battery and the two Gates Reading tests, but the two ability tests were given by the university students.

All the tests were administered to the students during mid-May to early June in both 1956 and 1977. The Progressive Matrices were administered to a sample of approximately three-fifths of the total group of pupils in 1977; that is, grade three pupils in three-fifths of the schools were given this test. This was necessary in order to permit four other samples to be tested in connection with a study of grade three achievement in Alberta which was being conducted simultaneously.

Curricular validity was of particular concern in this study. The fact that the tests listed above were chosen for use in 1956 would indicate that they were considered to be valid, at least insofar as content was concerned. There was a fear, however, that the content would be less valid for the 1977 pupils. In order to ensure curricular validity in

1977, three groups of reviewers were asked to identify those test items thought to be inappropriate for the 1977 students. These reviewers were University of Alberta curriculum experts, Edmonton Public School Board supervisory staff with responsibilities in elementary education, and the teachers of all participating grade three classes. The reviewers identified seventeen test items, one with two parts, as being inappropriate for the 1977 students. Verification of these judgments was accomplished through item analysis procedures. That is, it would be expected that the difficulty levels and the discrimination indices (point biserial correlations) of the inappropriate items would be different in 1977 as compared to 1956. As the students took the complete test in every case, item elimination was carried out as part of the analysis procedure. Statistics for the complete tests were also obtained as a matter of interest.

TABLE 1

STATISTICS OF ITEMS DEEMED INAPPROPRIATE

Test	Item No.	Item Content	Item Difficulty[a]		Item Discrimination[b]	
			1956	1977	1956	1977
Gates Word Recognition	24	Word veil	.71	.65	.37	.30
	42	Word arbor	.43	.42	.33	.30
	44	Word dormitory	.56	.65	.35	.32
	47	Word pugilist	.23	.26	.10	.04
Gates Paragraph Reading	31	Word temperature	.14	.20	.24	.35
	31	(2nd part) temperature	.21	.29	.36	.33
C.A.T. Arithmetic						
3 Sec C	8	Roman III	.89	.72	.37	.33
3 Sec C	9	Roman VI	.66	.29	.38	.34
3 Sec C	10	Roman XX	.68	.32	.40	.36
3 Sec D	10	Meaning of lb.	.80	.82	.37	.43
3 Sec E	3-Pt.2	Write how	.82	.83	.36	.32
3 Sec E	4-Pt.2	Write how	.73	.62	.32	.32
3 Sec E	4-Pt.2	Write how	.86	.84	.32	.34
4 Sec I	4	Add 4 digit nos.	.86	.74	.22	.34
4 Sec I	7	Subtract 4 digit nos.	.52	.37	.36	.40
4 Sec I	8	Multiply 2 x 3 digits	.02	.03	.11	.13
4 Sec I	9	16 ÷ 4	.55	.56	.29	.35
4 Sec I	10	3850 ÷ 35	.09	.02	.20	.13

[a] Proportion of pupils who responded correctly to an item.

[b] Point biserial correlation between success on item and score on all other items.

Students Tested

In 1956, the tests were administered primarily for norming purposes; hence, virtually all of the grade three Edmonton Public School pupils were tested. In keeping with the policy of duplicating the 1956 procedures in 1977, all grade three Edmonton Public School pupils were scheduled to be tested. In both 1956 and 1977 only those pupils present on the designated testing days were tested.

Results

Table 1 indicates the test questions that were deemed inappropriate for the 1977 pupils, and provides the item analysis data for each of these test questions.

There was no need to exclude any of the test items for the two Gates tests. For some items that were deemed inappropriate (i.e., Word Recognition items 24 and 25) the 1977 performance was lower, as expected, but for the remaining excluded items (i.e., Word Recognition items 44 and 47, and Paragraph Reading items number 31, both parts) the 1977 performance was actually higher. In the California Arithmetic test, however, elimination of several test items was justified. In eight of the twelve items deemed inappropriate, the 1977 pupils achieved below the 1956 standard, as is evidenced by these test item difficulty levels. With regard to the remaining four test items, the 1977 pupils achieved above the standard set in 1956, but in all cases the differences were marginal.

Table 2 indicates the results for the tests when the inappropriate test items were eliminated, while Table 3 indicates results for the complete tests. Table 4 indicates the results of the two ability tests. It should be noted that data for the Raven test were based on a sample, as mentioned earlier.

TABLE 2

1956 and 1977 SCORES ON TESTS
WITH INAPPROPRIATE ITEMS EXCLUDED

Test	1956			1977			Increase in mean from 1956 to 1977
	N	*Mean*	*S.D.*	*N*	*Mean*	*S.D.*	
Gates Word Recognition	3 540	35.35	5.57	4 430	37.41	4.31	+2.06
Gates Paragraph Reading	3 569	22.27	4.14	4 430	22.66	4.03	+ .39
Total Gates Reading		57.62			60.07		+2.45
California Achievement Reading	3 576	75.26	6.97	4 417	77.58	5.93	+2.32
California Achievement Arithmetic	3 377	55.98	5.97	4 367	55.56	7.58	- .42
California Achievement Language	3 564	24.24	5.35	4 391	25.41	5.17	+1.17
California Achievement Total		155.48			158.55		+3.07

TABLE 3

1956 and 1977 SCORES ON COMPLETE TESTS

Test	1956			1977			Increase in mean from 1956 to 1977
	N	*Mean*	*S.D.*	*N*	*Mean*	*S.D.*	
Gates Word Recognition	3 540	37.28	6.19	4 430	39.38	4.87	+2.10
Gates Paragraph Reading	3 569	22.63	4.37	4 430	23.15	4.36	+0.52
Total Gates Reading		59.91			62.53		+2.62
California Achievement Reading	3 576	75.26	6.97	4 417	77.58	5.93	+2.32
California Achievement Arithmetic	3 577	63.44	7.60	4 367	61.72	9.29	-1.72
California Achievement Language	3 564	24.24	5.35	4 391	25.41	5.17	+1.17
California Achievement Total		162.94			164.71		+1.77

TABLE 4

1956 and 1977 SCORES ON ABILITY TESTS

Test	1956			1977			Increase in mean from 1956 to 1977
	N	*Mean*	*S.D.*	*N*	*Mean*	*S.D.*	
California Test of Mental Maturity	3 443	76.09	6.14	4 378	80.12	6.82	4.03
Raven Progressive Matrices	3 596	24.83	5.37	2 577	27.29	5.59	2.46

Discussion

This study appears to provide solid evidence that the level of achievement in the communication skills for grade three pupils in the Edmonton Public School system had risen in the period from 1956 to 1977; this difference occurred despite the fact that the 1977 pupils were, on the average, 1.72 months younger. In the case of mathematics, performance of the students, as defined by the 1956 edition of the California Achievement Test of arithmetic, had declined. The decline was not general, however, but appeared to be specific to a few test items. This indicates that the decline may be more a function of changes in teaching emphasis resulting from curriculum changes than from a deterioration in pupil performance. For instance, lower scores obtained from items involving Roman numerals were to be expected because most of the 1977 pupils were taught the Roman symbols for numbers one to ten only. Similarly, in questions involving money, most of the 1977 grade three classes dealt with amounts up to one dollar only. Whether or not these curriculum changes are desirable was not a matter for study in this project.

The criticism of standards of education appears not to be justified, at least with respect to the first three grades of schooling in the Edmonton Public System.

Notes

1. The *N*s varied slightly among the tests within the test battery.

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Characteristics of Doctoral Dissertations in Secondary Reading 1960-1976

The characteristics of 567 doctoral dissertations reported in the area of secondary reading from 1960-1976 are described, including: (a) discussion of demographic variables such as yearly production of dissertations, type of degree, sex of author, institutions awarding degrees; and (b) content analysis of topics, research type, domain of investigation, data analysis techniques, and instrumentation used. Results reveal that for the period 1960-1976: more EdD than PhD degrees have been awarded, the number of female degree recipients is increasing with the degree tending to be the PhD, topical trends in dissertations vary by year and between the two degrees, EdD dissertations show more variability in length, and there is a trend toward more empirical research and greater use of sophisticated data analysis techniques in secondary dissertation research. It is concluded that the dissertation literature is a valuable source of information and research ideas in the area of secondary reading.

The International Reading Association's third edition of *Graduate Program and Faculty in Reading* (Seifert, 1978) lists information on over 300 colleges and universities offering graduate programs in Canada and the United States. There is no dearth of opportunity to get involved in graduate work in reading, including advanced doctoral study. Approximately one-third of the institutions list doctoral programs leading to the EdD or PhD degree.

Dissertations are almost universally required for the doctoral degree in North America. Surveying doctoral offerings in education in 145 U.S. institutions, Robertson and Sistler (1971) found that more than 90 percent of both EdD and PhD programs used the dissertation as the only means of satisfying the terminal research requirement. Robertson's 1971 study revealed similar requirements for Canada. Although some institutions are experimenting with substitute requirements, the dissertation shows no sign of being immediately abolished. The sheer bulk of

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dissertation literature is impressive, with 340 000 doctoral degrees awarded between 1861 and 1970 and a projected figure of 340 000 more for the 1971-1980 decade (Wolfe & Kidd, 1971, p. 784). University Microfilms (1974, 1975) reports that for 1960 to 1975, a total of 63 929 dissertations were completed in the field of education — almost 20 percent of all dissertations produced.

The purpose of the research reported here is to add information not found in the IRA publication and provide a more complete picture of graduate study in secondary reading in North America.

The source used for dissertations was the abstract publication *Dissertation Abstracts International* (DAI) published by University Microfilms. Volumes 20 through 36 (July 1961 - June 1976) were hand searched to provide a 15-year corpus of abstracts for analysis. Hand searching was found to be best. Studies can be hidden in index schemes because of vague titles or the manner in which the titles are classified. Some dissertations have not been included because some institutions, both major and minor, do not choose to participate with DAI. The total omitted would be less than two percent for the time period studied.

Reading research was defined as being *any dissertation dealing, in whole or part, with reception of communication through print.* This broad definition was deliberately used to capture all dissertations with obvious reading content. Then those studies dealing with grades seven through twelve, or using at least in part an adolescent sample, were selected as being dissertations related to secondary reading. Using this definition produced a total of 567 secondary titles. Each DAI abstract was tabulated according to 10 demographic and content variables for computer manipulation (demographic variables: year of completion, degree type, sex of author, institution, length; content analysis variables: topic, type of research, educational domain, data analysis techniques, data gathering instruments).

Descriptive Data

In examining dissertations completed by year, it was found that a somewhat dramatic surge occurred in the period 1971-1976 (dissertations completed in 1960-1965 = 15% of the total, 1966-1970 = 22%, 1971-1976 = 63%) perhaps reflecting expanding interest in secondary reading as an area of professional study. Approximately equal numbers of PhD's and EdD's were completed across the 15 years (54% and 46% respectively) with, overall, seven out of ten dissertations being granted to males. The 567 dissertations were granted from 115 separate institutions with a small number of colleges and universities producing better than 50 percent of the total. The 16 institutions which granted 10 or more secondary dissertations are listed in Table 1. Dissertations ranged in length from 45 to 685 pages with a median length of 157 pages. The page length distribution was positively skewed with the standard deviation of 85.7 emphasizing marked variability in the length of dissertations.

Using an empirical method of classification (Jeroski, 1977), the abstracts were organized into 30 content categories and subcategories. Other researchers have reported use of classification systems based on authoritative opinion but such systems usually result in considerable loss of information. For example, Palmatier and Manzo (1974) and Palmatier and Rood (1975) reported analysis of 273 and 371 dissertations in reading for 1973 and 1974. Their subjective classification scheme, consisting of 31 categories, was used to organize the 1973 collection and resulted in 68 percent of the dissertations being classed as "other." A broader typology was developed for 1974,

consisting of 43 categories, with 28 percent of titles being classed as other. With the empirically developed categories (in which the content of the documents determines the classification categories) used in this study, it was possible to classify precisely every dissertation and avoid use of the ubiquitous "other" category.

TABLE 1

FREQUENCY OF DISSERTATIONS BY INSTITUTION

Institution	Degrees Awarded
New York University	26
Florida State University	23
Boston University School Education	20
Indiana University	20
University of Southern California	17
Syracuse University	17
University of Pittsburgh	16
Temple University	13
University of Oregon	13
Columbia University Teachers' College	12
University of Georgia	12
Arizona State University	11
University of Northern Colorado	10
University of Minnesota	10
University of Illinois	10
University of Wisconsin	10

No. of Institutions	Reported No. of Dissertations
4	9
3	8
7	7
7	6
8	5
5	4
16	3
17	2
32	1

The 30 categories were collapsed into the 12 broad topics appearing in Table 2 to aid in interpretation of overall trends. The four categories, Reading Skills, Correlates of Reading Achievement, Reading in Content Areas, and Reading Problems accounted for six out of ten dissertations across the 15 years. The most striking characteristic of the original 30 categories and the 12 collapsed categories in Table 2 is the wide array of topics in secondary reading which were of interest to the 567 doctoral candidates in their research.

TABLE 2

FREQUENCY OF DISSERTATIONS
BY COLLAPSED CONTENT CATEGORIES

Content category	*N*	%
Correlates of Reading Achievement	75	13.23
Measurement, Evaluation and Diagnosis	22	3.88
Motivation and Attitude Toward Reading	27	4.76
Response to Reading	31	5.47
Reading Programs	41	7.23
Materials	35	6.17
Reading Personnel	40	7.05
Reading Skills	129	22.75
Reading in Content Areas	71	12.52
Reading Problems	67	11.82
Atypical Learners	19	3.35
Miscellaneous Research	10	1.76

With respect to general focus, more than half the dissertations dealt with the cognitive domain, one-quarter with a mixture of the cognitive and affective, and less than three percent had the affective domain as the primary concern.The most frequent type of research was quasi-experimental with correlations, experimental, and survey research the next most frequently occuring categories (Table 3). It is interesting to note that almost half the dissertations were classified as either experimental or quasi-experimental suggesting that some type of experimental manipulation of data took place in the study.

TABLE 3

FREQUENCY OF DISSERTATION BY RESEARCH TYPE

Research Type	*N*	%
Quasi-experimental	173	30.57
Correlational	131	23.14
Experimental	85	15.02
Survey	68	12.01
Content analysis	49	8.66
Material development	21	3.71
Philosophical	18	3.18
Ex post facto	14	2.47
Other	7	1.24

Table 4 lists the data analysis techniques used. Simple correlation and descriptive analysis accounted for almost 50 percent of the research with analysis of variance techniques adding another 20 percent. More sophisticated techniques such as factor analysis, multivariate analysis of variance, and multiple discriminant function analyses were less often cited. The most frequently cited data gathering technique (24 techniques in all were identified) was the standardized achievement test with other frequently used techniques being nonstandardized achievement tests, standardized aptitude tests, demographic classifications, and nonstandardized survey instruments. More than one data gathering technique could be reported in a study and a total of 1 370 techniques were cited for the 567 dissertations.

TABLE 4

FREQUENCY OF DISSERTATION
BY DATA ANALYSIS TECHNIQUE

Data Analysis Technique	*N*	%
Simple correlation	132	24.51
Descriptive statistics	130	23.28
Analysis of variance	127	22.40
t test	66	11.64
Analysis of covariance	59	10.41
Multiple regression	17	6.70
Chi square	29	5.11
z statistic	27	4.76
Not applicable	26	4.59
Multivariate anova	17	3.00
Factor analysis	10	1.76
Nonparametrics	7	1.23
Discriminant function	4	.71
Not given	139	24.51

Bivariate Analyses

Analysis of the nominal data, organized into bivariate tables using Pearson's Chi square, produced the interesting results summarized in Table 5.

Year of Completion. Examination of year by type of degree indicated a significant relationship ($\chi^2 = 15.18, df = 2$) which is accounted for by the fact that there was a shift to more PhD's granted since 1970, reversing the 1960's trend where the EdD was more prevalent. For the total 15 years, three out of four doctorates were awarded to males. However, a highly significant relationship was found for sex and year of completion ($\chi^2 = 15.18, df = 2$) which indicates a sharp increase in female doctorates since 1970. Analysis of variance revealed mean page length was not significantly related to year of completion, which suggests that, although slight differences in mean length occurred each year, the wide variability in page length noted earlier was typical across the 15-year time span. The topics of dissertations have changed over the years as indicated by the highly significant relationship ($\chi^2 = 49.56, df = 20$) between year of completion and content category. Most notably, the content categories Response to Reading and

Reading Personnel represent a chronological increase while dissertations on Reading Problems and Reading Programs have decreased. Because of the low cell frequency, it was not possible to evaluate the data for research type and data analysis techniques statistically in relation to year of completion. Overall, experimental studies have shown an increase while quasi-experimental, correlational, and survey studies have remained proportionally the same. Analysis of variance (including covariance and *t* tests) and multivariate data analysis techniques have increased proportionally over the years.

TABLE 5

SUMMARY OF BIVARIATE ANALYSES

Variable	Year	Degree	Sex
Year	--	*	***
Degree	*	--	n.s.
Sex	***	n.s.	--
No. of pages+	n.s.	n.s.	n.s.
Content classification	***	**	n.s.
Research type	invalid	n.s.	n.s.
Data analysis technique	invalid	n.s.	n.s.

* = chi square significant at .05
** = chi square significant at .01
*** = chi square significant at .001
n.s. = not significant
invalid = cell size insufficient for chi square analysis
\+ = relationships with mean number of pages analyzed by using *F* statistic

Type of degree. As reported above, year of completion was significantly related to type of degree. Type of degree was not significantly related to sex of author ($\chi^2 = 2.57$ n.s., $df = 2$) although the data reveal a higher proportion of PhD's being awarded to females. Analysis of variance indicated that page length was not significantly related to type of degree, mean page length being slightly higher for thePhD. However, a notable difference in standard deviation for page length by degree was found using Bartlett's test for homogeneity of variance; much greater variability was evident in the length of the EdD. The topics pursued in dissertations have varied depending on whether the degree was the EdD or the PhD as indicated by the significant relationship between type of degree and content category ($\chi^2 = 26.16$, $df = 2$). A disproportionate number of PhD's appeared in the categories Response to Reading and Reading in Content Fields while a disproportionate number of EdD's appeared in the categories Motivation and Attitude Toward Reading, Reading Programs, and Measurement, Evaluation and Diagnosis. Type of research and data analysis technique were not significantly related to degree type ($\chi^2 = 8.36$ n.s., $df = 8$; 4.87 n.s., $df = 6$, respectively). This is an interesting finding and supports the observations of Ashton (1965), Spurr (1970), Boyer (1972) and others who have suggested that any theoretical differences between the EdD and PhD have long since ceased to exist.

Sex of author. A disproportionate number of females completed degrees in the 1970's, as revealed by the highly significant relationship between sex of author and year of completion ($\chi^2 = 15.18, df = 2$). Sex of author, however, was not significantly related to type of degree awarded ($\chi^2 = 2.57$ n.s., $df = 2$), length of degree or page variability, topic of the dissertation ($\chi^2 = 10.79$ n.s., $df = 10$), type of research ($\chi^2 = 6.89$ n.s., $df = 8$), or data gathering technique used ($\chi^2 = 6.06$ n.s., $df = 6$).

In summary, the bivariate analyses revealed the following significant relationships: (1) more PhD's than EdD's have been awarded since 1970, (2) more females have been completing doctorates in secondary reading in recent years and the degree tends to be the PhD, (3) the topical emphases in dissertations changes year by year and EdD's and PhD's vary in the topics researched, and (4) although the average length of the EdD and the PhD are similar, the EdD shows markedly more variability in page length. It is also of interest to note the trend toward more empirical research and greater use of sophisticated data analysis techniques in secondary dissertations.

Some General Observations

The first supplement to the secondary dissertation collection has already been completed. Volume 37 of DAI was searched and 87 dissertation located which fit the definition of secondary reading presented earlier. Strong research interest in secondary reading continues and analysis of the additions to the collection supports many of the trends noted previously. Although yearly trends are of interest, it is felt that it would be of most value to report a thorough classification and content analysis of secondary dissertations about every five years to determine consistency and significant changes in overall trends.

Dissertation titles were found, in general, to be good indicators of content. All 567 titles were analyzed and non-informative words (articles, prepositions, conjugations, pronouns, and auxiliary verbs) were eliminated. This produced an average of six informative words per title indicating good descriptive titling for the collection.

The list of institutions producing ten or more dissertations provides a useful guide to colleges and universities where considerable work has been done in advanced study of secondary reading. The list of all 115 institutions reporting dissertations is available upon request.

The abstracts reported in DAI were of uneven quality. Others have noted the same difficulty in working with collections of dissertations (Boyer, 1972; Brehaut, 1969; Gross, 1972). Along with a succinct statement of the problem, authors should be particularly careful to include the following in their abstracts: (1) type of research, (2) educational domain, (3) data analysis techniques, (4) data gathering instruments, and, if applicable, (5) clear description of the independent and dependent variables and the results of any statistical analysis. Advisors should take particular care in supervising the preparation of the abstract submitted to DAI to insure that adequate information content is being reported.

Glass (1976) suggests that, "The dissertation literature is huge and filled with gems. It's a scandal that few persons other than doctoral students ever enter it" (p 12). Empirical evidence also points to the fact that few journal articles are written on dissertations (Boyer, 1972; McPhie, 1959) with less than three out of ten dissertations exploited for further publication. In this analysis, many interesting, substantive ideas, research findings, and the like were noted in dissertations which have never seen the light of day in the open literature. Dossick (1972) was correct in his suggestion that, "[Dissertations] are conspicuously shelved in the university libraries, to gather the

proverbial dust" (p.2).Others, too, have found the dissertation literature to be of great value. Yesseldyke and Pickholtz (1975) state, "Perhaps the best indicator of research interests and trends in a particular field is a review of theses and dissertations being completed for doctoral degrees" (p. 264). Their comment is echoed by Draper (1974), McDonald (1974), Palmatier and Rood (1975), and Worthington (1975), to name but a few.

In conclusion, the points made by Dossick (1972) can summarize our attitude after working with the extensive collection of 567 dissertations completed in the field of secondary reading from 1960-1976.

> [Dissertations] contribute much to knowledge because of the highly specialized character of the data, the results of minute research under expert guidance, and because of the wide use of primary sources, experimental investigations, statistical information, etc. . . .Over and above much of the pedestrian and at times, mediocre, there remains a huge vast storehouse of valuable research which represents a "frozen asset" of data ready to be tapped like a rich vein in a mine. (p. 2)

Appreciation is expressed to Sharon F.M. Jeroski for use of her M.A. thesis data.

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The Alberta Journal of Educational Research *Vol. XXVII, No. 2, June, 1981*

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Use and Perceived Effectiveness of Occupational Information

The use of occupational information and its effectiveness as perceived by counsellors and guidance personnel in Alberta secondary schools is limited. Research is reported which shows the type and degree of limitations. Counsellors appear to have difficulty relating to students about occupational information because of their own lack of practical experiences in the world of work. The perceived role of the counsellor does not give a high priority to use of occupational information. Administrative problems, the school's philosophy and attitudes seem to be obstacles in promoting effective use of occupational information.

Occupational information is needed by students in secondary schools for effective career preparation and planning. Unfortunately, in many schools, adequate occupational information is not available and, in a number of schools,is not effectively used when it is available. Sinick (1970) indicates that guidance workers themselves all too often raise questions about the validity and utility of the dissemination of occupational information to aid them in carrying out one of their responsibilities. Years ago, Shartle (1961) advocated that training in the use of occupational information be considered just as important as training in any other personnel or guidance procedure. In terms of importance, Shartle said, occupational information is frequently passed over as something anyone should be able to understand and use. This situation does not help students who wish to learn about their possible career interests and options.

Mott (1971) found that occupational materials were available in the school for teachers' use, but apparently counsellors were not assisting teachers in developing strategies for their most effective use.

Smith and Cadera (1978) indicated that one of the problems inherent in career development approaches is oversimplification of the discrimination of occupational information as a way of sharing vocational decisions. It appears that many times occupational information is given to students without adequate explanation or follow-up.

Dr. Young (PhD, Ohio State University) has been a secondary school teacher of industrial arts in Colorado, a vocational teacher in Ghana, and a university professor at Ohio State University, Oregon State University, and Ahmadu Bello University in Nigeria. He has served as advisor and consultant in Nigeria, and travelled in 40 countries. His academic achievements include research and publishing in the area of Industrial and Vocational Education in Canada, the U.S.A., and overseas.

This is reflected in Clark's (1975) study in regard to the amount of time guidance counsellors spend dealing with career information. Only 19.6 percent of guidance counsellors' time was spent on career information.

This is a report of a research project aimed at determining the use and perceived effectiveness of occupational information in Alberta secondary schools. The study was conducted by the author and graduate students at the University of Alberta in the Department of Industrial and Vocational Education during the period of 1977 - 1979.

Objectives of the Study

The major purpose of the study was to obtain information across the province about the use of occupational information and its perceived effectiveness in the secondary schools.

Specific objectives included the development of an instrument, administration of the instrument, data collection, and analyzation and preparation of a final report.

Method

The term "occupational information" as defined by Norris, Zeran, and Hatch (1965) was used as a guide for this study. They defined occupational information as valid and usable data about positions, jobs, and occupations, including duties, requirements for entrance, conditions of work, rewards offered, advancement pattern, existing and predicted supply of and demand for workers, and sources for further information (p.22).

Occupational information for the purposes of this study was defined much more naturally. It was comprised of two aspects: (a) material related to the preparation process for entrance into the world of work (i.e., data regarding training and educational programs leading to specific occupations) and (b) material which concentrates on the specific jobs and which is potentially useful to a person considering these jobs.

Population. In view of the obvious need and importance for occupational information by secondary school students in career planning, it was decided to administer the instrument to all secondary schools in Alberta. The Alberta Department of Education provided a list of schools offering secondary education. These included schools of grades K-12, 7-12, 10-12, and composite high schools. In part, the Alberta schools which made up the population may be considered a sample of similar schools across Canada.

The research instrument was developed after conducting both a literature survey of similar instruments and a series of interviews with educators involved in career planning. After conducting local pilot studies, the final draft of the instrument was mailed to all the secondary schools in Alberta.

The instrument was made up of five sections dealing with the following: general information, resource materials, methods of providing information, sources for obtaining materials, and services which might be improved to facilitate career guidance in the secondary schools.

Data Collection. Questionnaire data were coded, compiled, and entered on an 80-item data sheet to be transferred onto key punch cards. A computer program was prepared to analyze data from the returned questionnaires. Of the 265 mailed out, 225 were returned. Of these, 10 could not be used since they were not included in the target population. Thus, 215 instruments (81%) provided usable data.

Results

General information from the instrument indicated that 33% of schools were comprised of grades K-12; 26%, combined junior-senior high schools grades 7-12; 20%, senior high schools grades 10-12; 11%, composite high schools; and 10% were classified as others.

The data indicated that 39% of the schools were situated in towns, 31% in cities, and 30% in villages. The student enrollment varied greatly from the rural areas to the cities.

The type and number of personnel dealing with occupational information was not consistent from school to school. The data showed that 53% of the schools had one or more counsellor and guidance personnel; 5% were sharing a counsellor and guidance person with at least one other school; and 38% had a teacher serving as a counsellor and guidance person on a part-time basis. Only 43% of the schools contacted reported that their school district employed a central counsellor and guidance administrator.

Resource Materials

Table 1 provides percentages of utilization and perceived effectiveness of resource materials in accessing occupational information.

Calendars from postsecondary institutions were reported to be the most widely used and effective resource material. Career monographs, apprenticeship publications, and other professional publications ranked as the next most used material.

Career information kits were rated higher in terms of perceived effectiveness than in utilization, an indicator that this type of material may have greater potential.

The Canadian Classification and Dictionary of Occupations (CCDO), industrial, trade and business publications received a low rating of usage and effectiveness as a resource material.

TABLE 1

PERCENTAGES OF UTILIZATION AND PERCEIVED EFFECTIVENESS OF RESOURCE MATERIALS IN ACCESSING OCCUPATIONAL INFORMATION

Resource Materials	Utilization	Perceived Effectiveness
Apprenticeship Publications	77	78
Calendars: Postsecondary institutions	94	90
Canadian Classification and Dictionary of Occupations	50	52
Career Information Kits	61	74
Career Monographs	86	86
Industrial Publications	42	52
Professional Publications	66	68

Methods of Providing Occupational Information

The percentages of utilization and perceived effectiveness of the methods of providing occupational information are shown in Table 2.

Of the methods providing occupational information, individual interviews, displays and posters ranked highest. Guest speakers, vocational interest inventories, and work experience were also ranked high. Audiovisual materials, student interviews with employers, field trips and career days ranked low in utilization but were perceived to be an effective method of providing occupational information.

The Alberta Department of Education's explorations in career planning and work study received the lowest rating. Reasons for this low rating are not clear.

TABLE 2

PERCENTAGES OF UTILIZATION AND PERCEIVED EFFECTIVENESS OF METHODS OF PROVIDING OCCUPATIONAL INFORMATION

Method	Utilization	Perceived Effectiveness
Audiovisual Materials	55	73
Career Days	40	55
Displays and Posters	95	87
Explorations in Career Planning: (Alberta Department)	33	41
Field Trips	41	65
Guest Speakers	74	84
Individual Interviews	87	90
Student Interviews with Employers	48	64
Vocational Interest Inventories	75	74
Work Experience	71	73
Work Study	31	36

Sources of Occupational Information

Of the eight sources listed in Table 3, Educational Institutions were rated the highest, with 92% of the respondents indicating utilization and 76%, perceived effectiveness. The discrepancy might indicate that this source of information is being either over-utilized or misused.

Ranked next are: Federal Canada Manpower Centres; Industry, Trade and Business; the Alberta Department of Education Counselling and Guidance Branch; Professional Organizations; and Provincial Career Centres. School Boards and the Chamber of Commerce were rated lowest.

TABLE 3

PERCENTAGES OF UTILIZATION AND EFFECTIVENESS OF SOURCES OF OCCUPATIONAL INFORMATION

Source of Information	Utilization	Effectiveness
Alberta Education Counselling and Guidance Branch	54	55
Chamber of Commerce	14	21
Educational Institutions	92	76
Federal Canada Manpower	69	61
Industry, Trade & Business	59	58
Professional Organizations	51	55
Provincial Career Centers	46	45
School Boards	30	30

Services to Facilitate Career Guidance

Counsellor and Guidance Personnel Training. Concerning counsellor and guidance training, 87% of the respondents felt that personnel who provide students with occupational information need special training; 10% felt that personnel do not need training; and 3% did not respond. As to the value of a university or college course in training personnel to use available information effectively, 52% felt this would be of great benefit; 44%, of some benefit; 2%, of no benefit; and 2%, no opinion.

The respondents were then asked to list areas of training they perceived as being of importance. Their comments were compiled under the headings: Information Services; Testing Expertise; Counselling Practicum; Career Development Theory; and other formalized Training.

Counsellor and Guidance Personnel Experience. Regarding kinds of experiences other than formal courses that could be made available to counsellor and guidance personnel, 89% included Inservice workshops or Seminars; 48% listed Up-grading Courses; and 45% valued Work Experience.

The respondents were then asked to list those types of personal experiences they perceived as being applicable to career guidance. Their comments were listed under the headings: Practical Experience in Various Fields; Knowledge of the Local Employment Situation; Experiences within the Educational System; Visitations; and Other Relevant Experiences. See Table 4 for respondents' ratings of services to facilitate career guidance.

Adequacy of Existing Programs. The data indicated that 50% of those polled felt that their school was providing an adequate program in helping students form realistic concepts of the world of work; 50% felt that their program was inadequate; and 10% did not respond.

Those who responded negatively about their school's career guidance program were requested to indicate the problematic areas in their own situation. Their comments were categorized under the headings: Administration; Time Restrictions; Finances; Staffing; Teaching Attitudes; Student Attitudes; Counsellor Training and Experiences; Informational Services; and Present Career Guidance Methods.

TABLE 4

SERVICES TO FACILITATE CAREER GUIDANCE

Facilitating Service	Rating in Percent
Counsellor Training	
Special training required	87
Training not required	10
No response	3
Postsecondary Course in Using Information	
Of great benefit	52
Of some benefit	44
Of no benefit	2
No opinion	2
Counsellor Experience	
Inservice workshops or seminars	89
Upgrading courses	48
Work experience	45

Conclusions

Counsellors and guidance personnel rely a great deal on institution calendars and career monographs as major resource material about occupations. Apparently, they also feel this is an effective method of providing occupational information for students. Regarding methods of accessing occupational information, individual interviews, displays and posters were popular.

It appeared that counsellor and guidance personnel value professional training and experience in a positive manner. They particularly identified the need of becoming more knowledgeable about occupational information.

The availability of occupational information was not viewed as a severe problem. The main concern seemed to be the utilization of information, interpretation and effective distribution.

The lack of practical experiences in the world of work on the part of counsellor and guidance personnel was obvious. Many indicated a desire for a variety of first-hand experiences in the world of work in order to communicate a more realistic occupational picture to students. They also desired a greater familiarity with both present employment opportunities and future projections of the labour market.

Administrative problems such astimetabling, staffing, and finances seem to reflect the individual school's philosophy towards the importance of occupational guidance. Also, teacher and student attitudes were viewed as further sources of problems in the effective treatment of occupational information.

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The Alberta Journal of Educational Research *Vol. XXVII, No. 2, June, 1981*

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Human Relations Training — The Effects of Methodology

This study examined the effect of training methods on teachers' satisfaction and personal growth. A random sample of 421 teachers in the public schools of Minnesota responded to a questionnaire designed to examine: (1) satisfaction with methods of instruction used in human relations training, (2) the effect training methodology had on personal growth, and (3) training methodology they perceived as most effective. Findings revealed that while the lecture method was used most extensively, methodology classified as simulation or on-the-job training was perceived as most effective in human relations training.

Few would argue that teachers need to be humane, empathetic, and accepting in the classrooms. The need for educators to acquire training to develop more meaningful human relationships is well documented (Rogers, 1969; Jerslid, 1955; Dinkmeyer, 1971). There is considerable evidence that human relations training increases the effectiveness of teachers. Positive correlations have been found between the achievement levels of students and the level of understanding, warmth, and empathy displayed by teachers (Aspy, 1969; Kratochvil, Carkhuff & Berenson, 1969). Teachers who have had human relations training adapt better to

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the classsroom setting (Hicks, 1975) and are more skillful in the areas of communication, problem solving, and decision making (Jerrems, 1971). It is also important to note that training in human relations increases teachers' facilitative levels of communication and allows them to shape their perceptions and insights with respect to themselves and others (Israel & Savitsky, 1972). It appears that students can benefit through improved learning environments from teachers who have been trained in human relations.

Although there are many studies dealing with the outcomes of human relations training, few focus on comparison of methods (Levin & Kurts, 1974) and it has not been established what element of the training causes behaviour change (Hipple, 1970, 1973). The trend, according to Landy and Trumbo (1976) is toward researching which techniques do work, not which methods are most effective for achieving objectives.

The purposes of this study were to gather data relative to techniques presently being used in human relations training for teachers and to compare the effects of training methods on teachers' satisfaction and personal growth.

Method

The study was conducted in the public schools of Minnesota during the 1977-78 school year. As the result of a questionnaire survey of all fifty states, it was determined that Minnesota's human relations training mandate offered the most comprehensive list of requirements and was representative of other states. A total of 1 263 questionnaires were mailed to 57 randomly selected attendance centers. Forty of the 57 (70%) attendance centers participated in the study. Of the 488 questionnaires returned, 67 were completed by Minnesota teachers who had Lifetime Teaching Certificates. Since these 67 were exempt from the human relations training mandate, they were deleted from the study, leaving 421 (33%) usable questionnaires. More than half of the teachers who participated in the study were employed in grades 7-12, 57 percent were females, and the majority were between 20 and 34 years of age. Approximately eight of every ten respondents had received their human relations training from a four-year college.

Procedures

A cross sectional questionnaire was used to collect data from teachers. Twenty instructional methods highly related to the classroom environment were selected and grouped into three main categories: (1) information presentation, (2) simulation, and (3) on-the-job training. Teachers were provided a supplementary sheet describing each teaching method as well as a list of the 26 components mandated in the Minnesota program. For each of the 26 components, teachers were asked to indicate: (1) the method of instruction used to "teach" the component, (2) their satisfaction with the method of instruction, (3) the effect the training had on their personal growth, and (4) which method of instruction would be most effective for teaching that component. A rating scale of one to seven was used, with one representing a low and seven a high degree of satisfaction or personal growth.

Analysis of variance was used to examine the effects of method of instruction upon teacher satisfaction and personal growth. Duncan's Multiple Range Test was used to determine where significant differences existed. Significant differences are reported at the highest level, i.e., either .05 or .01.

Results

The study had two major purposes: (1) to determine teachers' satisfaction with methods of teaching used in human relations training, and (2) to determine the effect of methods of instruction on the personal growth of teachers.

Mean scores for teacher satisfaction and effects of training may be seen in Table 1. Teachers expressed greatest satisfaction and reported greater personal growth with "other" as a teaching method. It should be noted the method "other" was used infrequently (.03%). They were least satisfied with programmed instruction, while reading lists provided the least personal growth. Lecture ranked sixteenth for providing satisfaction and seventeenth for promoting personal growth. Of the nine methods classified as simulation and on-the-job training, none ranked lower than twelfth for either dimension.

TABLE 1

RANK OF MEAN COMPARISON OF TEACHER SATISFACTION AND EFFECTS OF PERSONAL GROWTH WITH METHOD OF INSTRUCTION

Rank of Methods	Degree of Satisfaction (N = 10,641)		Effect upon Personal Growth (N = 10,560)	
1.	Other	5.260	Other	5.717
2.	Case method	5.144	In-basket technique	5.425
3.	Task-centered games	4.807	Job rotation	5.111
4.	Task model	4.854	Case method	5.032
5.	Systematic observation	4.833	Programmed instruction	4.930
6.	On-the-job coaching	4.640	Task-centered games	4.843
7.	Committee assignment	4.582	Task model	4.667
8.	Job rotation	4.500	Committee assignment	4.665
9.	Conference-seminar	4.438	Role playing	4.410
10.	In-basket technique	4.367	Systematic observation	4.392
11.	Role playing	4.340	On-the-job coaching	4.252
12.	Laboratory education	4.337	Incident method	4.220
13.	Reading list	4.259	Conference-seminar	4.005
14.	Incident method	4.250	Laboratory education	3.867
15.	Sensitivity training	4.219	Sensitivity training	3.664
16.	Motion picture	4.116	Lecture	3.380
17.	Lecture	3.732	Motion picture	3.177
18.	Closed circuit TV	3.588	Training by correspondence	3.075
19.	Training by correspondence	3.333	Closed circuit TV	2.983
20.	Programmed instruction	3.234	Reading list	2.921

ANOVA results shown in Table 2 indicate that method of instruction affects teacher satisfaction with human relations training. Satisfaction with methods differed significantly ($p<.01$). The Duncan revealed that there was no significant difference between simulation and on-the-job training but that both were superior to lecture and information presentation ($p<.01$). Lecture was reported as less satisfying than information presentation ($p<.01$).

TABLE 2

ANOVA SUMMARY TABLE FOR TEACHER SATISFACTION WITH METHOD OF INSTRUCTION

Source	*df*	*SS*	*MS*	*F*
Between groups	3	1,094.79	364.93	110.71*
Within groups	10,595	34,924.91	3.30	
Total	10,598	36,019.70		

* Highly significant: .01 level.

Table 3 shows that there was a highly significant difference ($p<.01$) relative to the effect method of training had on the personal growth of teachers.

TABLE 3

ANOVA SUMMARY TABLE FOR EFFECTS OF METHOD OF TEACHING ON PERSONAL GROWTH

Source	*df*	*SS*	*MS*	*F*
Between groups	3	2,270.60	756.87	221.83*
Within groups	10,510	35,859.40	3.41	
Total	10,513	38,130.00		

* Significant: .01 level.

The Duncan revealed that the four methods all differed significantly from each other ($p<.01$). Simulation was reported as providing the greatest personal growth, followed by on-the-job training, information presentation, and lecture.

Discussion

The findings indicate that teacher satisfaction and personal growth are effected by the method of instruction utilized in human relations training. Teachers expressed more satisfaction and reported greater personal growth when methods classified as simulation or on-the-job training were used. This supports the conclusions reached by Argyris (1962), Schein and Bennis (1965), and Hipple (1973), although their research was not conducted with teachers.

While simulation and on-the-job training were identified as the most effective methods for human relations training, lecture, the method used most extensively, was rated as least satisfying. The teachers also identified lecture as the method least effective for contributing to personal growth.

The case method, in-basket technique, task centered games, and task model appear to be choice methods of instruction since they rate high for teacher satisfaction and personal growth. The method "other" was not considered in hypotheses testing since only a small number reported this method of instruction, but it had the highest ranking for both satisfaction and personal growth. Since those who reported it as a method of instruction failed to specify what the other methods were, it was impossible to draw any further conclusions. This is an area ripe for further study.

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PERSPECTIVES

Teachers' Opinions and the Ideational Basis of Education

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Among the more important, if little understood, determinants of the character of the school experiences of children are the educational opinions of their teachers. Such opinions do more than provide a rationale, perhaps even a justification, for a particular set of educational purposes and procedures. In determining the limits of the educational alternatives and possibilities envisioned by or acceptable to an educator, they act as an important causal factor in the initial selection of these purposes and procedures. They constitute, in fact, an ideology within which an educator is forced to think and act. Without an adequate understanding of the structures and character of teachers' educational opinions, no full comprehension of the present character or possible future directions of education is possible.

Educational opinions are, of course, uniquely personal and idiosyncratic, occurring in complexes that vary not only in content but in intensity. Attitudes and opinions, however, can be abstracted from the personalities of which they are a part and expressed in formal statements. They can thus be objectified and subjected to analysis and categorisation into clusters which indicate general orientations towards education. Some of these sets of opinions are so coherent that they can be expressed in a series of logically related statements from which can be derived specific recommendations concerning educational goals and practices. They can thus not inappropriately be referred to as educational theories. One can, then, using educational opinions as a basis, construct a typology of educational orientations and of educational theories current among prospective and practising teachers.

This paper will develop a conceptual framework or matrix within which various categories of educational opinions can be identified. It will then report and comment on the results of research carried out at the University of Alberta designed to discover and

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demonstrate the degree of affiliation among prospective and practising teachers to the orientations and theories identified.

Two Dimensions of Educational Opinion

There are many attitudes and opinions held by educators, aspects of which have relevance for their performance as teachers. Of special significance, however, are those which give expression to basic beliefs about the nature of the child and its relationship towards authority. These beliefs, although numerous and complex, are isolable and can be categorised into two opposing clusters, which in their antithetical relationship comprise a single dimension of educational opinion. At the centre of one cluster is the belief in the innate goodness of man and thus in the rightness or appropriateness of instinctive or impulsive forms of behaviour. Associated with these basic beliefs are a series of educational slogans proclaiming the desirability of open learning environments, play activities, motivational needs, freedom of expression, and the child's right to make choices. The process and task of education is thus defined as one of making manifest whatever is latent within a child. The antithetical cluster has at its heart the denial of any innate goodness in man and consequently stresses the importance of acquired behaviours. It has thus spawned its own set of educational slogans stressing the importance of structured learning situations, work activities, prescriptive needs, the child's right to receive what adults determine is appropriate, and, above all, discipline and control. It thus rejects the view of education as manifestation and views it instead as a process of acquiring knowledge and behaviour which are external to the individual. The two clusters and the dimension of educational opinion they define may be characterised by the terms "child-centred" and "teacher-centred." The educational dualism they represent is a familiar one to educators and can be traced, in its present form, back to the educational literature of the mid-eighteenth century. The persistence with which educators over the past 250 years have continued to express their differences in the terms of this dualism suggests that its treatment as a primary dimension of educational opinion is justified (Dewey, 1902, pp. 3-10).

Educational opinion, however, splits on dualism other than that of "traditional" teacher-centred beliefs as opposed to the "new" child-centred ones, and on none more profoundly and significantly than that concerning the nature of knowledge and related questions such as the status of science and scientific inquiry. Indeed, a teacher's beliefs concerning the nature of reality, of truth, of knowledge are as fundamental to the formulation of educational purposes and procedures as those concerning the nature of childhood. These opinions, expressed in formal statements, can also be grouped into two clusters of related beliefs which comprise a second dimension of educational opinion. The clusters and the general orientations they represent may be designated "toughminded" and "tenderminded."[1] The discrete yet logically related elements of toughmindedness include a commitment to materialism and an associated embracing of empiricism and determinism. Objectivity is thus viewed as a necessary and desirable characteristic of modes of inquiry, of knowledge, and of professional relationships. Control over the emotions (particularly over those of love and hate), dispassion, detached judgment — these are the hallmarks of understanding, of correct decisions, of appropriate behaviours. The principal elements of tendermindedness, on the other hand, are antithetical preferences for transcendentalism, intuitionism, free will, and subjectivity both in knowing and in determining the nature of human relationships. Passionate involvement and freeflowing emotions are seen not as barriers but as avenues of truth, knowledge and right action. The dualism represented by these two

clusters of opinions is one of the oldest in the western intellectual tradition. It can be seen in one form in the differing kinds of knowledge and truth pursued in Plato's Academy and Aristotle's Lyceum, and is still evident in the inability of C.P. Snow's two cultures to understand each other fully. Whatever the origins of the dualism, it is clear that the educational issues raised by the conflict between its elements are fundamental ones, and perhaps even more generative of educational differences at a theoretical and practical level than the previous one.

A Matrix of Educational Opinion

While, in one sense, the two antithetical clusters of opinions which comprise a single dimension are logically discrete, it is possible to conceptualise them as representing the extremes of a single range of possible sets of opinions. Between extreme child-centredness and extreme teacher-centredness, for example, there are an indefinite number of intermediate positions, each representing a certain degree of inclination towards one or the other. The dimension can, in fact, be represented by a single scale of educational opinion.

The two scales and the dimensions of educational opinion they represent are, as has been suggested above, theoretically independent. This assumption of an orthogonal relationship between the two dimensions makes possible the creation of a symmetrical matrix within which various categories of educational opinion can be established.[2] The particular character of an individual's educational opinions can, in fact, be established by determining the appropriate point on each of the two scales and plotting the resultant position within the matrix. And while there are an indefinite number of positions that can be occupied within the matrix, it is also the case that certain of these share a common area of the matrix and can thus be categorised. Moreover, if within a general population the distribution of scores within each scale is conceived of and represented as a normal curve, it is possible not only to categorise opinion but also to determine the relative frequency with which each category will occur within this general population. These categories of educational opinion and their relative popularity are depicted in Figure 1, where S represents one standard deviation from the mean on a normal curve.

Within a general population, then, some 46% will possess no strong educational opinions as defined by the matrix. Such a category will presumably be comprised not only of those who are indifferent to the appeal of the slogans inherent in each set of clusters, but also of those who have succeeded in combining in a unique personal belief system elements from the antithetical clusters of each dimension. There is, of course, no logical reason why a personal educational belief system should be constructed according to the logic and particular structure of the matrix described above. Nevertheless, in terms of the matrix, the belief systems of this group may legitimately be said to be characterised by indifference or confusion or both.

Forty-four percent of the total population will demonstrate a strong set of preferences along one of the dimensions but show no strong commitment along the other. This particular type of belief system is referred to in Figure 1 as an educational orientation. Thus, the freedom orientation, authoritarian orientation, science orientation, and humanistic orientation will each contain approximately 11% of the total general population.

The remaining 10% will show a strong commitment along both dimensions and thus be categorised into one of the four theoretical affiliations identified in Figure 1. The association of child-centredness with toughmindedness is characteristic of affiliation to a theory of pedagogical naturalism as conceived and expounded by Rousseau, Dewey, and Piaget. Child-centreness combined with tendermindedness can

be categorised as educational romanticism as expressed in the literary works of William Blake and Charles Dickens, by modern client-centred therapists like Roger and Laing, and by the neo-Freudian freeschoolers, Homer Lane and A. S. Neill. Commitment to teacher-centredness and toughmindedness are at the heart of the educational recommendations of nineteenth century utilitarians like James Mill and Jeremy Bentham, and of twentieth century behaviourists like J.B. Watson and B.F. Skinner. Finally, tendermindedness combined with teacher-centredness represents an orthodox religious view of the child and his education, as expressed, for example, by Jewish, Roman Catholic, and Christian fundamentalist educationists. This category is referred to as a Christian humanistic affiliation. We may expect to find, however, only about 2.5% of the general population possessing an affiliation for any one of these general theories.

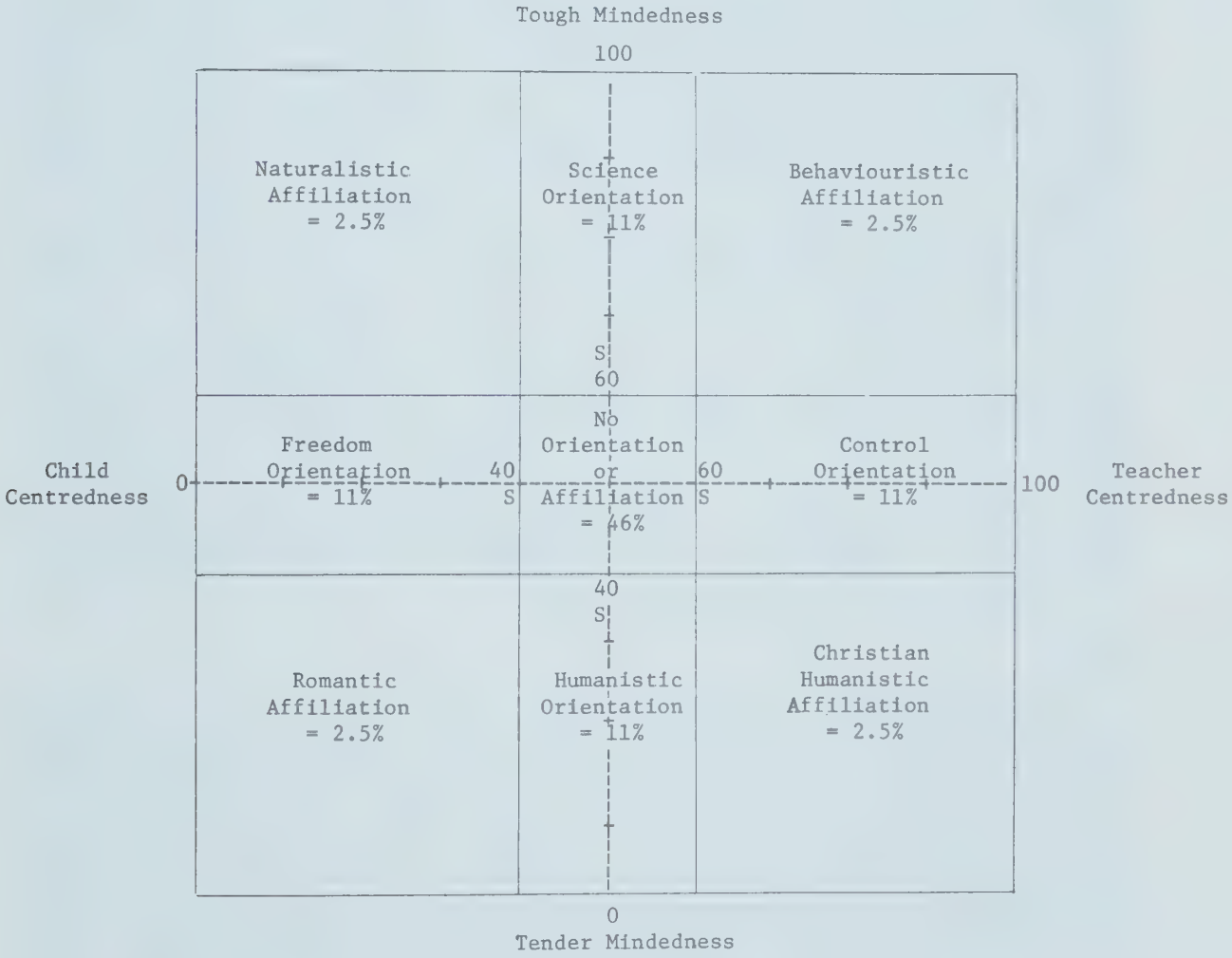

Figure 1. Category distribution of educational opinions within an ideal type general population.

It is important, at this point, to make a further distinction between an educational orientation and affiliation to an educational theory. The former term refers to sets of opinions which are essentially one-dimensional — that is, which reflect a strong commitment within one dimension but little or no preference within the other. Thus, to subscribe to the beliefs associated with child-centredness with no corresponding commitment to either tough or tendermindedness constitutes an educational orientation. While such an orientation is important in setting certain limits to a range of preferred educational goals and practices, it does not in itself contain any clear and unequivocal educational implications. It will, rather, tend to generate a set of educational slogans, empty of precise meaning, specifying no education particulars (Komisar & McLellan, 1965, pp. 200-1). Affiliation to an educational theory, on the other hand, refers to those sets of opinions which reflect a strong commitment along both dimensions. In such cases, concepts acquire a meaning precise enough to generate clear and coherent educational implications. Thus openness in education (a preference clearly associated with child-centredness) remains a mere slogan until it is associated with either tough- or tendermindedness and becomes an element in a general theory of Naturalism or Romanticism. In the former case, it will express itself in the kind of learning environment constructed by Dewey in his Chicago experimental school; in the latter, it will imply the kind of learning situations that arose in A.S. Neil's Summerhill. Similarly the idea of progress (a concept inherent in toughmindedness) has no precise meaning or educational implications until associated with child- or teacher-centredness — until it becomes, in fact, Dewey's evolutionary based notion of growth or the inevitable result of Skinnerian social engineering.

Within a general population, then, we may expect to find a relatively large number (46%) of individuals who have no strong educational orientation or theoretical affiliation, an almost equally large number (44%) who possess a clear educational orientation, and a relatively small number (10%) who are affiliated to a comprehensive educational theory. Of course, in the real world, there is rarely, if ever, to be found an ideal type general population which can be categorised so neatly, precisely, and symmetrically. Nevertheless, a concept of such an ideal type can function as an important frame of reference for an analysis of the opinions of a particular population group — for example, the teaching profession.

Ideational Structure and Teachers' Opinions

Among the several important population groups whose opinions, as it were, lie behind and affect educational practice, that of prospective and practising teachers must be considered of special significance. Not only does this particular population control the day to day practice of education; equally important, in view of its training and experience, we might resonably expect that its knowledge of the contemporary educational process would be more intimate and reliable than any other group, its understanding of the theory underlying the practice more sophisticated, and its opinions better informed. Indeed, as a source of insight into the present character of public education, the educational opinions of teachers, both prospective and practising, must be considered primary data. In ascertaining and considering these opinions, it is important to make a distinction between those beliefs which may be said to reflect a personal stance towards education, and those which are attributed by the individual to the educational organisation or institution within which the individual is to operate. The former is a view of the ideas which it is believed ought to govern educational practice, the latter a perception of its actual theoretical underpinnings. Both types of opinion, however, are important in revealing something of the ideational basis of contemporary education.

In an attempt to discover something of the nature of both types of opinions, and to compare in this respect the teaching profession with an ideal type general population, a questionnaire was designed utilising the conceptual model described above to provide a measure of prospective and practising teachers' preferences along each of the two dimensions of the matrix (Miller, 1974). The resulting scores located the belief system of a particular individual at a point within the matrix and thus enabled its categorisation into one of the nine types discussed above. In addition, each respondent was also asked to give his or her opinion of the position adopted by the system of education towards each of the questionnaire items. Thus, a further measure was obtained of teachers' perceptions of the ideational foundations of actual educational practice. The questionnaire was administered to 520 prospective and practising teachers registered in courses at the University of Alberta. Several analyses of data were carried out and several significant results obtained.

To begin with, consider the category distribution of teacher personal belief systems illustrated in Figure 2. There are two observations about the category cell distributions illustrated in Figure 2 which are of particular significance. The first concerns the disproportionately large number of respondents (58%) who demonstrate no orientation or theoretical affiliation. The most important factor inflating the number in this category is clearly the relative weakness of the science (1.7%) and humanistic (7%) orientations.[3] Both are significantly underrepresented, the former markedly so. One can only speculate about the reasons why the alternative views of truth and knowledge represented by the tough/tenderminded dualism possess so few strong adherents among teachers. It may be, of course, that the relatively low standard deviation within this scale (7.5 as opposed to 9.9 on the child/teacher-centredness scale) is a function of conceptual confusion among the questionnaire items. It seems more likely, however, that it is a reflection of a comparatively weak interest among teachers in epistemological questions and a corresponding strong interest in issues that appear to be methodologically relevant (Miller, 1976). Whatever the causes, when one considers the teaching profession's lengthy period of training and its primary role in the educational enterprise, this relatively low level of ideational or theoretical commitment among teachers is somewhat disappointing if not disconcerting.

The second observation is not quite so obvious but perhaps more interesting and certainly more revealing of the structure of contemporary educational theory. It will be noted that despite the relative weakness of the science (1.7%) and freedom (4.8%) orientations, the theoretical affiliations to Behaviourism (3.3%) and Romanticism (4.8%) are disproportionately strong. What is at work here is a powerful association among teachers of two logically discrete clusters of beliefs, the preference for toughmindedness being linked with teacher-centredness, that of tendermindedness with child-centredness. Put simply but not incorrectly, science is seen as being tied to a control orientation, while a humanistic orientation is seen as liberating. Conversely, the virtual complete absence of a Naturalistic affiliation (0%) and the relatively low representation of a Christian Humanistic affiliation (1.7%) indicate a related tendency to disassociate the science orientation from a freedom orientation, the control orientation from a humanistic orientation. In the current climate of education opinion, it appears that the major theoretical affiliations of educators are to Behaviourism, with its apparent commitment to the scientific study and treatment of man and its support for such values as external control, achievement, conformity; or to Romanticism, with its antithetical commitment to the subjectivity of knowledge and the values of self-discovery, self-expression, self-fulfillment. Even if there is an awareness of, there is certainly no belief in the alternatives offered by Naturalism, with its Deweyan

commitment to freedom through participatory democratic decision-making and liberating objective scientific inquiry, or by Christian Humanism, which insists upon the necessity of self-control, based essentially on self-knowledge and an inherently pessimistic, if not tragic, view of social life.[4]

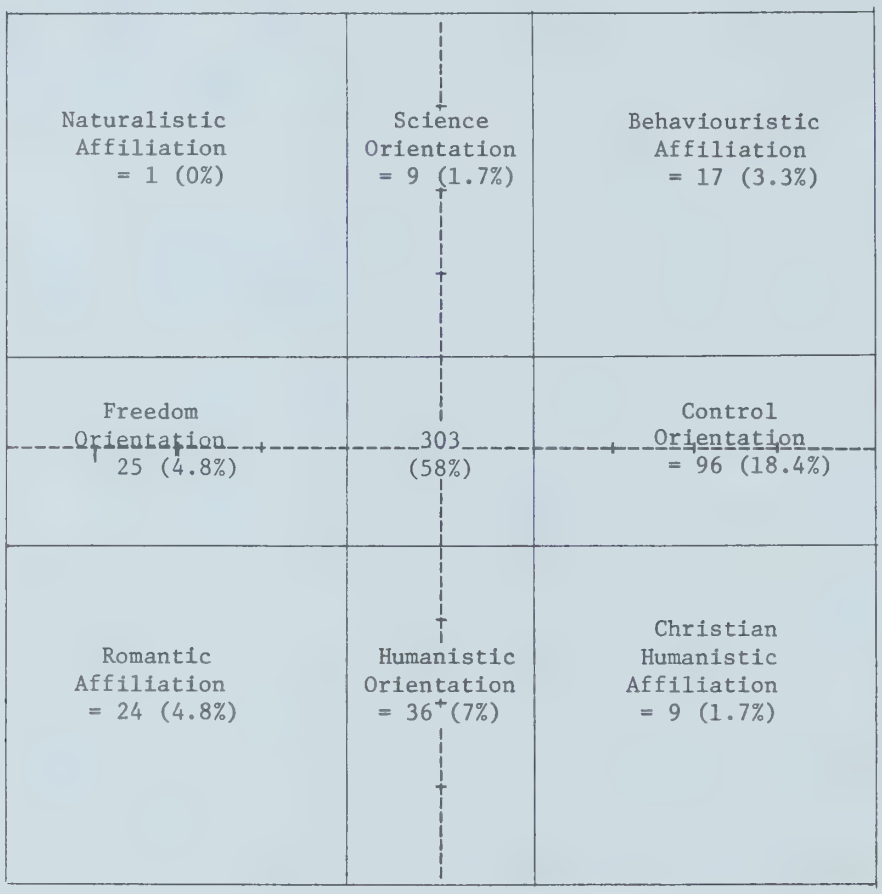
Naturalistic Affiliation = 1 (0%)
Science Orientation = 9 (1.7%)
Behaviouristic Affiliation = 17 (3.3%)
Freedom Orientation = 25 (4.8%)
303 (58%)
Control Orientation = 96 (18.4%)
Romantic Affiliation = 24 (4.8%)
Humanistic Orientation = 36 (7%)
Christian Humanistic Affiliation = 9 (1.7%)

Figure 2. Category distribution of teachers' educational opinions. (Total $n=520$)

It has been noted that a disproportionately large number of teachers show no strong orientation or affiliation and that those who do have clear theoretical commitments are attracted mainly to Behaviourism or Romanticism. These findings, however, concern only the personal belief systems of teachers; they tell us nothing of their opinions concerning the ideational foundations of the actual practice of education as they have experienced or, indeed, conduct it in their classrooms. The category distribution of teachers' opinions concerning the beliefs underlying the system of education is given in Figure 3.

Once again, two principal observations may be made about this distribution. First, there are proportionately very few teachers (14.6%) who view the system as lacking a strong ideational basis. Whatever the strength and coherence of their own educational beliefs, they perceive no lack of either in the theoretical foundations of the educational practice approved by the system they are involved in.

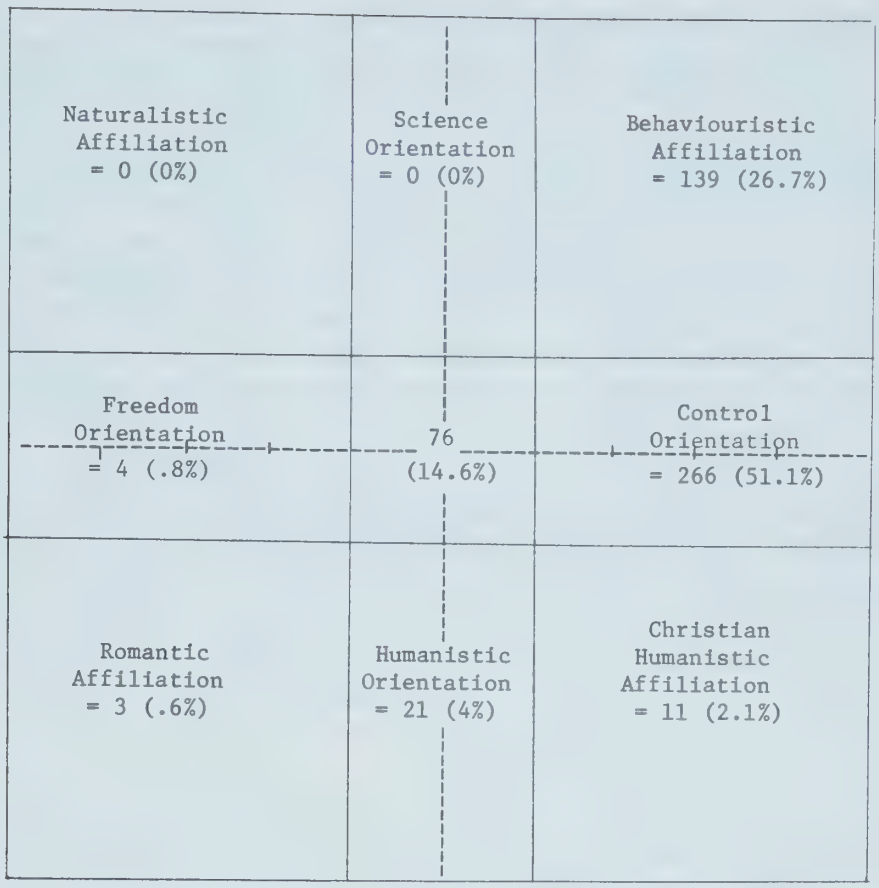

Figure 3. Distribution of teachers' perceptions of the ideational foundations of the system of education. (n=520)

Secondly, there is clearly evident a high degree of agreement concerning the actual nature of this strong ideational underpinning of the educational system. A high proportion of teachers view current educational practice as based either upon a control orientation (51.1%) or upon an affiliation to to Behaviourism (26.7%). The other three orientations and three affiliations account for only 7.5% of responses. That teachers should view education within a system of compulsory schooling as reflecting a control orientation is hardly surprising. What is more interesting and significant is the strength of the perceived theoretical affiliation of the system. Once again, there is apparent an association, in this case an extremely powerful one, of toughmindedness with teacher-centredness. Indeed, so strong is the association of science with control that the Naturalistic affiliation and science orientation are completely unrepresented. The educational system, then, tends to be viewed as a concrete manifestation of society's commitment first to the truths reached by the scientific study of man and nature, and second to the maintenance of order and control both within and over the individual and society. In this sense, the system is seen to operate in accordance with its own internal logic; whatever its faults, it is seen to possess the virtues of coherence, consistency and clarity of purpose.

The perceived current strength of the control orientation and behaviouristic affiliation in education ought not to be surprising and, indeed, is probably no greater now than it was when Dickens satirised it so bitterly in his *Hard Times* almost a century and a half ago. From its earliest beginnings, the public school has been linked ideologically with the factory system and industrial mode of production, themselves dominated by an ideational commitment to science, technology, and social control (Miller, 1973). Given a theoretical basis by utilitarian ethical theory in the nineteenth century and an experimental foundation and fresh vocabulary by psychologists in the early twentieth century, the behaviouristic domination of educational opinion and practice has proven to be virtually unassailable. The vision of democracy and education held out by Dewey, the much discussed but little tried social and educational ideals of progressive education, the eloquent criticisms voiced by the romantic imagination, even the various degrees of a Christian presence in public education — none have succeeded in weakening what now appears to be perceived as a monolithic ideational structure of public education. Nor do the personal educational opinions of teachers appear to pose any immediate threat to this ideational foundation of education. Indeed, the large proportion (58%) of teachers having no orientation or theoretical affiliation, the disproportionately strong control orientation (18.4%), and the disproportionately strong association of the concepts of science and control (3.3%) suggest that in the foreseeable future, the behaviouristic affiliation will continue to be perceived as the dominant force in education.

In conclusion, it should be noted that, as is always the case in attitude and opinion studies, one must be especially cautious about suggesting any direct relationship between stated beliefs and actual behaviours. We know little if anything of the relationship between category membership and classroom performance, and nothing of that between a teacher's perception of an educational system and the actual theory and practice in operation within the system. Nevertheless, despite and in the face of such disclaimers, for the few despairing voices that have been raised in the wilderness of proliferating behavioural competencies and more refined control techniques, the lack of any serious challenge to the dominance of behaviourism revealed by an analysis of prospective and practising teachers' educational opinions presents a most dismal prospect.

Notes

1. The opposing sets of beliefs described here have been commented on in a number of contexts. Of particular significance for the present study, however, are the distinctions made by William James between the optimism of healthy mindedness and the pessimism of the reflective sick soul (James, 1971, pp. 92-171), and that made by P. Sorokin in his analysis of the evolution of culture between the "sensate" and "ideational" modes of knowledge and truth (Sorokin, 1957, p. 311).
2. See the discussion and application of Lewin's concept of "phase-space" (Lewin, 1951) by Jackson (1959).
3. The freedom orientation (4.8%) is also significantly underrepresented, but is more than compensated for by the disproportionately strong control orientation (18.4%). Together they comprise over 23% of the total responses, compared with 22% of an ideal type general population.
4. See, for example, the two alternatives offered educators in *A Choice of Futures* (Worth, 1972, pp. 26ff).

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Preparing Educational Administrators for Ethical Practice

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> Ethics is an aid to moral navigation. We can sail without it if we wish. But we ignore it at some peril. (Hodgkinson, 1978, p. 220)

The few educational administration texts which consider the subject of ethics tend to discuss the importance of ethical behaviour rather than to facilitate the learning of it. In fact, one looks in vain for the word "ethics" in either the table of contents or the index of *A Values Approach to Educational Administration* (Ostrander & Dethy, 1973), a text dedicated to the importance of one's personal value system and philosophic posture in guiding his administrative behaviour, and a search of the *UCEA Review* for the past dozen years turns up little more than some passing references to the incorporation of ethics into preparation programs (VanGeel & Immegart, 1978; Gibson & Stetar, 1976; McIntyre, 1970; Report on Syracuse University's Seminar, 1970; Nunnery & Kimbrough, 1969; Reference to videotaped discussion, 1968). Available literature provides almost no guidance on how to prepare educational administrators for ethical practice.

While the present article is an initial attempt toward filling this gap, it ignores some pertinent topics. For example, it does not dwell on the importance of ethics to human behaviour generally or to contemporary educational administration in particular. The conditions in society that are causing those in the medical, legal, business, and other professions to become increasingly concerned with ethics are well recognized. Concern in educational administration has been heightened by such developments as the stress on accountability and efficiency; the use of sophisticated technology in such areas as information control and chemical, electronic, psychological, and biological approaches to trait and behaviour modification; and the need, as Gross (1978, p. 293) has indicated, for the school, its administration, and its teachers to be "models of ethical conduct " because of

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the decline in other traditional sources of values such as the home, the church, and the community. These concerns require no elaboration for present purposes.

Nor is there an effort here to distinguish definitionally such related concepts as ethics, values, morals, sensitivity, humanism, or philosophy — except to emphasize that ethics (like morals) are not identical to values. In this regard, Sergiovanni and Carver (1973, pp. 18-22) have built helpfully upon Huebner's work by presenting a taxonomy of values, in which ethical values comprise one of five systems (the other four being technical, political, scientific, and aesthetic values). Among others who have tried to differentiate between these two concepts, Berkson (1968, p. 51) suggests that ethics derive from patterns of values; Blackmon (1977, p. 51) states that "ethics are related to a profession as values are to an individual," with which one may disagree in the belief that there is a personal component to ethics that transcends any given profession (although the operationally useless "clotheslines" of generalities that typically pass for "codes of ethics" indicate that most professional associations concur with Blackmon's view); and Peters (1966) remarks that "what is distinctive of ethics as a branch of philosophy is that it is concerned with the analysis and justification of answers to practical questions where 'practical' is contrasted with 'theoretical' " (p. 17).

Definitions aside, what this article *does* address are the following three questions:

1. Can and should ethics be included in the formal preparation of educational administrators?
2. To what extent and in what ways do current programs include ethics?
3. What further development, if any, should be pursued in this area?

Thus, attention is focussed on the arguments, the realities, and the prospects regarding ethics in the preparation of educational administrators.

The Arguments

Can and should ethics be included in the formal preparation of educational administrators? Accepting the view that ethical competence (the will and ability to act professionally in accordance with high moral principles) is essential to educational administration today does not necessarily imply a positive answer to this question. Several issues must first be carefully considered, and it must be recognized that the topic is the development of ethical competence in prospective educational administrators — not values clarification (although the process of introspection is relevant), not sensitivity training (although human relations skills are relevant), and not the study of school law (although the concept of justice is relevant). All of these relatively common training components have some relationship to the development of ethical competence, but none of them is directly addressed to that task. The concern here is with the possibility of something different — with a consciously focussed endeavour, during formal preparation, to develop ethical competence.

The first argument to be considered revolves around whether or not the effort is worthwhile at all. On the one hand, Donald Thomas (1974) has written:

> It is difficult for men and women to learn to be ethical; it is not a skill to be developed. Rather it is the man or woman in total; it is the sum of one's values, beliefs, and priorities. It is the way one accounts for his life and his own worth. The choice is not difficult if one is by habit an ethical person. (p. 50)

Thomas is not alone. Bok (1976) implies that there are many who believe that moral development involves acquiring proper moral values and achieving the strength of character to put these values into practice, matters that are not easily taught in a

classroom; this point of view accounts for the statement of a business school spokesman who, in explaining why there were no courses on ethics in his curriculum, said: "on the subject of ethics, we feel that either you have them or you don't" (Bok, 1976, p. 29).

The opposing side has been taken by Erwin Miklos (1978), who provides examples of circumstances under which administrators must inevitably face ethical and moral problems and who calls for training that would help them grapple with these problems. Among the circumstances he presents are manipulation, particularly through the control of communication networks and the management of information flows; deception, which he says "is a component of accepted administrative practices" (p. 3); accountability, which administrators may seek to evade; and considerations about the very quality of organizational life. He concludes that "ethical and moral considerations are more pervasive in administrative decision-making action than is reflected by scholarly activity in the field of study and by the substance of preparation programs" (p. 3), and he raises the possibility that "ethics in administration could become acceptable as an area of specialization in the same way as the economics of education or the legal aspects of administration are now accepted" (p. 4).

Particularly convincing to the present author is the position taken by Harvard University's President. In discussing problem-oriented courses designed to encourage students to define their moral values more carefully and to understand more fully the reasons that underlie and justify these precepts, Derek Bok (1976) writes:

> Unless one is prepared to argue that ethical values have no intellectual basis whatsoever, it seems likely that this process of thought will play a useful role in helping students develop a clearer, more consistent set of ethical principles that takes more careful account of the needs and interests of others. And it is also probable that students who fully understand the reasons that support their ethical principles will be more inclined to put their principles into practice and more uncomfortable at the thought of sacrificing principle to serve their own private ends. (p. 29)

This supposition that ethical values have an intellectual basis is returned to later.

A second argument, assuming that one does decide to try and incorporate ethics into preparation programs, concerns whether one should teach moral absolutes or espouse ethical relativism. On the one hand, one finds the view expressed in *The ATA Magazine* (Samoil, 1978) that support for teaching moral absolutes is a rejection of complexity in favour of "the comfort and imagined security of a unilateral approach to life":

> Are we prepared to teach that only one set of values is appropriate for everyone in any situation? If so, which code of morality is it to be? Who will decide whether the schools should teach only moral absolutes and which principles will be taught?
>
> Is society in such a state of insecurity that it cannot tolerate divergent ideas and values? (p. 13)

The absolutists, on the other hand, reject this "tolerance" school of ethical thought, not only because it denies the existence of objective standards of morality, but also because they view the relativist line of argument as specious. Michael McGrath (1969) puts it this way:

> The position is something like this: ethical relativism means that one cannot say that certain human values are objectively superior to others; therefore, my values are not objectively superior to those of other men; therefore I am obligated to respect the values of all men as much as my own. Although it is not usually stated this explicitly, such an argument is clearly fallacious in that the conclusion is inconsistent with the premise.

> The premise states that no particular values are objectively superior to others; yet the conclusion seems to be saying that one value, tolerance, *is* superior to others. What is surprising is how many modern intellectuals accept such an argument and so delude themselves as to the consequences of ethical relativism. (p. 49)

McGrath concludes that, even though ethical judgments may be relational, this is not a sufficient reason to deny the possibility of ethical knowledge (p. 52).

Finally, there is the argument that involves the role of the professor, vis-à-vis the students, in teaching ethics. At issue here is the concern that program components dealing with moral issues will become vehicles for transmitting the private prejudices of the instructor. Harry Randles (1977), in a personal statement prepared for the NCPEA Continuing Interest Group on Values and the Humanities, seeks to avoid the problem by relying on the notion that his students are individuals who "have goals and aspirations which are uniquely their own." He goes on: "Acceptance of them as people implies acceptance of their goals and aspirations. Consequently, I feel a strong obligation to assist them to achieve their objectives. . . .I am obligated not to have a plan 'to improve' them" (p. 13).

There are at least two difficulties in sustaining this point of view. First, unless the instructor completely abdicates his professional responsibility as leader of the learning experience, he cannot avoid some degree of "steering," if only through his selection of readings or other content and activities to be included in the learning experience. Secondly, if he endeavours to remain completely neutral, he is modelling inauthenticity and it would, in effect, be unethical of him to expect his students to behave authentically under these circumstances. Thus, his means would be in conflict with his ends. Accordingly, if a professor endeavours to develop ethical competence in administrator preparation, he should be willing to expose his own ethics (which Randles [1977] is prepared to do, but on an "equal" basis).

The above examples of important arguments surrounding the question of whether or not ethics can and should be included in the formal preparation of educational administrators are sufficient to demonstrate the complexity of the question. The author's answer to it is that an effort to teach ethics should be made — carefully. The subsequent question is: How? Before an answer is attempted, a review of what is being done in contemporary practice is presented.

The Realities

To what extent and in what ways do current programs include ethics? The author recently conducted a survey to determine whether or not major university Departments of Educational Administration are offering learning opportunities concerned with ethics and, if so, why, what, for whom, how, by whom, and with what results? The institutions contacted were those holding membership in the University Council for Educational Administration during 1978, on the assumption that responses from them would provide a reasonable reflection of the "leading edge" in this field.

Eighteen replies were received from the 48 universities contacted, a response rate of 37.5%. One suspects that the vast majority of those who did not reply had nothing to say on the subject. Of those that did reply, the comments of seven may be summarized as follows: ethics is an important topic and a neglected one; we don't do much, or anything, specifically in this area at our institution. If this group is combined with the nonrespondents, it might be concluded that almost three-quarters of the universities contacted pay no conscious attention to the subject of ethics in their administrative preparation programs. The few reasons given by this

group of respondents include a lack of relevant competence by educational administration faculty members, and the availability of sufficient ethics-related courses elsewhere on campus (notably in Educational Foundations and Philosophy Departments, and in Business, Law, and Medical Schools). Other common remarks suggest confusion about what is meant by "ethics," and some concern for ethics in training educational researchers (but not educational administrators).

The remaining eleven responses fall into two basic groups — those reporting that the subject of ethics is integrated throughout much of their preparation programs, and those reporting distinct program components designed deliberately to focus on ethics. The majority (seven) of these are in the first group and most of them indicate that, to the extent that ethics are treated in their programs, they are included incidentally. The following statement is characteristic of this group:

> I subscribe to the belief that ethical knowledge cannot be taught as can computer-programming or time-tabling, since ethics have to do with insight and judgment and not with the manipulation of things. It is thus inappropriate to deal with ethical issues in "packages, entrance standards, topics covered, main references," and so forth. So far as I can determine, there has been little empirical success to date in the field of clarifying values for students or developing them morally — how then, can ethics, which is a subject far more complex than a simple question of morality, be dealt with by means of courses, in-service training, texts? Ethics is, in essence, expressed not simply through dogma but also through *being* — it cannot be learned through specific courses taught in school. The most that formal courses can do is raise an awareness of ethical issues.

Respondents in this category claim that matters related to ethics arise naturally in virtually all aspects of their preparation programs wherein the primary focus is on some other subject; ethical concerns intrude during practical or clinical experiences, during discussion of cases and simulations, and during regular courses through considerations such as ethical responsibilities in the supervisory relationship, ethical uses of personal data, and ethical business relationships. Thus, in these programs to the extent that ethics are treated it is done in an effortless and incidental way.

Two institutions in this group, however, reportedly endeavour consciously to integrate ethics into much of what they teach. Illustrative of this category is the following comment from one professor in a Canadian institution:

> I would characterize my approach to ethics in administration preparation as requiring:
> 1. First — the identification and naming of ethical issues arising from real situations reported by the students (not artificial cases or exercises)
> 2. Second — the exploration of the alternative values associated with different courses of action regarding the identified situations
> 3. Third — the presentation of my position on an appropriate course of action — along with an accompanying rationale. Of course, a discussion and encouragement of other viewpoints is mandatory.

This approach to considering ethics consciously as tangential to other primary foci of courses is dependent almost entirely on the interests and capabilities of individual professors.

The third and smallest group of responses came from four universities which have components within their administrator preparation programs that are deliberately and distinctly focussed on the subject of ethics. There follows a brief descriptive summary for three of these, beginning with the most deductively oriented and concluding with the most inductively oriented.

At the University of Minnesota, Sam Popper has developed a graduate seminar, which is cross-listed with the Classics Department, entitled "Applied Humanism in Administrative Behavior: The Classical Perspective." He and a professor of Classics

have also been testing this kind of seminar as an inservice offering through six three-hour sessions with superintendents in the field. The seminar encourages a search for linkages between Classical antiquity and contemporary problems confronting educational administrators, and a core graduate course in educational administration ("The Social Organization of Schools") is a prerequisite for it. The themes selected for the seminar "point to a range of contemporary problems in American society which impinge upon administrative decision-making behavior and whose antiquity is attested to by their recurrence in Classical literature." The seminar themes include: social contexts of value formation, valuing, and value change; the concept of the "polis"; ends-means reversal; concepts of power, influence, and authority; role expectations vs. human needs; recurring adaptation of a group to external pressures, internal redefinition of function, and transaction; nonverbal communication and the authenticity of behaviour — man the manager of impressions; role-motivated behaviour in formal organization; bureaucracy in antiquity and the "ideal type" of Max Weber; applied technology, moral restraints, and enlarging definitions of authority; the social function of myth; the tragic in human enterprise; the Saturnalia spirit. With each theme, relevant works from the Classics are examined for application to administrative behaviour in education today. To facilitate access to the Classical literature, a resource book of excerpts has been prepared.

At the University of Colorado, Russ Meyers consciously attempts, in teaching the Introductory course, to identify ethical issues, examine implications for administrative behaviour, and ask the individual student to recognize the relationship between that behaviour and the ethical issues involved (although he does not deliberately try to develop any specific ethical knowledge, skills, or attitudes). He draws on a few novels, plays, and films chosen because they portray significant moral dilemmas; these are supplemented by a number of one-page administrative incidents — summaries of actual happenings with value implications collected from a variety of sources — which are used as bases for class presentations and analyses. In addition, he has adapted a number of brief paragraphs describing situations and actions in administrative practice which clearly involve ethical problems; the students are asked to indicate the extent to which they approve or disapprove of the actions taken and to explain their responses. This course represents a combination of the inductive and deductive approaches to ethics in administrative preparation, but it is not clear how effectively it articulates these two approaches.

Finally, the University of Wisconsin at Madison recently introduced two annually offered, semester-long courses. While not required, they are assigned to a category of courses from which students must make choices. One of the courses, Educational Ethics, is taught by two philosophers and offered through the Department of Educational Policy Studies; it involves "a philosophical examination of selected moral issues facing school personnel." The course content addresses issues related to dealing with young people in schools, personnel practices, the distribution of resources, and the contribution of philosophy to the solution of practical problems. Readings are drawn from works on educational institutions and philosophical ethics. This course must be taken prior to or concurrently with the other new one, Ethics in Educational Administration, which involves "the study of ethics applied to problems in educational administration, with special emphasis on analytical development of ethical rationales through case studies." The content of this course deals with the context of ethical problems and moral dilemmas in

educational administration and involves the analysis of case studies in the administration of public schools, vocational-technical education, and higher education. The course derives from the beliefs that ethical competence[1] is essential to educational administration today and that neither intuitive personal judgments and opinions nor science and systems analysis are sufficient for the development of this competence. So the instructors seek consciously to prepare their students "for the application of analytical skills in ethical interpretations of academic and professional problems." The course draws on the growing body of literature about values, morals, and ethics in educational administration, and it relies heavily on the analysis of case studies which portray ethical dilemmas in the field.

In summary, this informal survey suggests that universities display a variety of approaches to the treatment of ethics in preparatory programs for educational administration — ranging from institutions where the subject is virtually ignored, through those in which it is treated (either incidentally or consciously) as a nonseparable subject that arises naturally in most of what is taught, to a few universities which have deliberately established distinct components on ethics in their administrative preparation programs.

One might identify four alternative rationales underlying this variety of responses. First, ethics cannot be taught (it is a matter of one's experience and values and the interaction of the two); this rationale for training relies on *accident*. Secondly, ethical sense can be developed by helping one to observe and analyse the behaviours of others and to clarify and understand his own values; this rationale for training stops at *awareness*. Third, ethical behaviour can be enhanced by conscious efforts to practise it through clinics, practica, and reality-based cases and simulations; this rationale for training proceeds to *action*, but with emphasis on viable and situationally determined alternatives. Finally, there are certain value systems and ethical principles that are desirable in the kind of society we live in or aspire to, and these can and should be inculcated within the moral philosophy which guides the behaviour of educational administrators; this rationale for training extends into *advocacy*. Responses to the author's survey imply that the order in which these four rationales are presented above corresponds to their frequency of application; that is, the rationale relying on accident for training in ethics is the most common, and that involving advocacy of particular ethical principles is unused (or at least not admitted to). As between the two intermediate rationales, there seem to be more programs intended to create an awareness of ethical issues than there are programs engaging their students in action with an ethical focus.

The Prospects

What further development, if any, should be pursued in this area? As a prelude to addressing this question, a summary of the apparent situation at present is in order. A review of relevant literature and practice suggests that, especially during the last fifteen years, preparation experiences in educational administration have featured considerable discussion of values at the conceptual level, exploration of various value systems and their implications for administrators, selected study of moral philosophy, some efforts at value-clarification exercises (at times associated with organization development or sensitivity training sessions), occasional exposure to content and products in the humanities as stimuli for examining moral dilemmas, and passing reference to the importance of "oughts" and subjective judgment in such key administrative tasks as decision making, problem solving, and purpose setting.

But there has been little serious, conscious effort to develop demonstrably in students the skills or behavioural propensities to act in ways that could be considered ethical; nor has the subject of ethics been clearly, consistently, or operationally defined in relation to such concepts as philosophy, values, sensitivity, authenticity, integrity, or morality.

The various methods that have been assayed as vehicles for training in ethics range from the largely affective to the mainly cognitive in nature. One affective type of approach comprises the various human relations techniques. The importance of sensitivity, empathy, and communication skills to administration cannot be denied. However, these skills can be practised, and taught, without an ethical component and they may, in fact, have anti-ethical valences. In addition, they can prove threatening to some; and they largely lack the cognitive component that some believe is necessary to ethical development. Roald Campbell (1972) has said that "the group process people, particularly the extreme proponents, appear to have taken us in. The inner feelings of many people might just as well stay inner; most likely nothing is to be gained by exposing them" (p.13). He and others recognize the importance of affective elements in preparation for educational administrators, but they reject them as the primary preoccupation in ethical development programs.

For similar reasons, the typical values clarification techniques appear unsatisfactory. While such approaches may play a useful supporting role in the development of ethical competence, they do not seem sufficiently cognitive in nature to bear the main burden. As usually practised, these techniques tend to be too game-like and simplistic for this purpose. Moreover, they often deal with values that are not essentially ethical in nature.

A third questionable approach is the one apparently relied on most heavily by universities at present. It might be referred to as the "laissez-faire" approach, for it depends on models and experiences for ethical development, and involves no direct instructional effort. It is based almost entirely upon chance — upon the ethical qualities of models to which one may have had exposure in life, and upon the willingness and ability of one to analyze these matters from an ethical point of view in an intellectually rigorous way. Nevertheless, it is a phenomenon whose operation should be recognized and exploited in ways supportive of any primary approach that is adopted, for it does seem futile to try and teach ethics with credibility if one is perceived by one's students to behave in unethical ways oneself.

Another relatively common approach is the integration, whether intentional or incidental, of moral issues throughout the regular program. While it has the advantage of suggesting that ethical questions are not isolated problems but rather are an integral part of the daily life and experience of the profession, this approach suffers from two main weaknesses, as noted by Derek Bok (1976). First, it may not provide students with opportunities to reason carefully about moral issues: "Most professors have so much ground to cover that they will rarely take the time to acquaint their students wih the writings of moral philosophers on the ethical issues under discussion" (p.27). Secondly, Bok quotes a business school report which suggests that spreading responsibility for moral education among a large number of faculty members is disadvantageous because many of them lack the knowledge of ethics necessary to the task and, accordingly, tend to "give short shrift to the moral problems and concentrate on other aspects of the course materials that they feel more equipped to teach" (p. 27). A more distinct focus on ethics seems called for.

A fifth approach is one that several educational administration scholars urged strongly during the 1960's (see, for example, Farquhar, 1970). It involves having recourse to the humanities, including Classics, as a foundation for the study of problems in values and moral dilemmas. Most of its erstwhile proponents would likely agree now that this movement never really "took off." There are still several professors who are deeply committed to it and who are implementing it, but they comprise a rare breed; moreover, the extent to which their efforts are directly contributing to the ethical development of their students remains uncertain. There seem to be two main problems with this approach. One concerns instructional staff: most professors of educational administration lack the necessary familiarity with the humanities to do the job well; their relations with professors in the humanities are so distant, and perhaps tinged with awe, that importing the talent from there is not a realistic option at many institutions; and sending one's students across campus to take courses in the humanities departments risks the problem implied in this question by Edwin Bailey (1977):

> Is the knowledge which our students may gain in a "liberating" course worth the negative impact on self-image? Or stated conversely, are the illiberal attitudes of a particularly specialized and critical-of-non-majors professor in the liberal arts worth the "liberating" knowledge provided? (pp. 33-34).

Secondly, a study reported in 1970 (Farquhar) indicated that a problem common to the humanities-based approach is the difficulty of achieving articulation between the humanistic content studied and the actual problems administrators confront in practice. The subject of ethics is a practical and immediate one. In approaching its study deductively from a base in the humanities, one starts at a point which, while perhaps exotic, is not sufficiently erotic to "grab" the attention of most educational administration "types." The contemporary surge of utilitarian vocationalism is contributing to this problem. A more inductive approach seems called for, one that starts with a primary focus on real, contemporary ethical problems confronting educational administrators and then delves selectively into humanistic content from time to time as circumstances dictate.

Finally, there is the more specific emphasis on the study of moral philosophy. Because this approach selects from the almost infinite humanities a particular component that deals specifically with thought about morality, the problem of professorial inadequacy is somewhat reduced in seriousness. But the problem of applicability remains. At the University of Rochester seminar on Ethics and the School Administrator a decade ago, the moral philosopher Lewis White Beck (1970) put it this way:

> the philosophical interest in ethics is not the hortatory or persuasive interest in trying to modify the way human beings behave. Moral philosophy is an intellectual venture, and if it attempts to modify human beings at all, it does so by trying to modify ways of thinking about moral questions rather than by trying to tell what the right answers to the questions are. (p.43)[2]

It was Immegart's view that, in pursuing the several objectives of that Rochester program, the least success was realized in applying ethics to the resolution of specific administrative problems (Farquhar, 1970, p. 33). To be meaningful, as Paul Kurtz (1969) says, "a moral principle must be applicable to concrete contexts and be workable in detailed cases" (p. 201). Yet, most courses in moral philosophy are simply surveys of ethical theory: they "do little to help the student cope with the practical moral dilemmas he may encounter in his own life" (Bok, 1976, p. 27). The moral philosophy approach may be more appropriate for the relatively relaxed and mature setting of mid-career in-service study,[3] but for the less seasoned students in

educational administration programs it will probably remain unsatisfactory, at least pending success in developing a philosophy of administration which "begins in the dirt," following the lead of Christopher Hodgkinson (1978, p. 170). (The thoughtful examination of the propositions set forth at the end of Hodgkinson's recent book could, in itself, provide an excellent basis for the development of moral philosophic thought and ethical behaviour on the part of administrative trainees (pp. 202-221); the same is true of his "analytical model of the value concept" (p.111), with its heuristic implications for morality and ethical behaviour in administration.)

But if all of these techniques seem in some ways unsatisfactory as primary vehicles for the development of ethical competence, what approach *should* be adopted? It would appear from the foregoing that a satisfactory vehicle would need to be cognitively oriented, inductive and applied in nature, and consciously distinguished within the educational administration preparation program. Some guidance toward this end may be gained from the moral education movement currently burgeoning in the school systems. While there are several different approaches to moral education (Purpel & Ryan, 1976), one that seems particularly appropriate for present purposes is the cognitive-developmental method developed by Kohlberg, because it focusses on the development of moral reasoning, an essentially cognitive process. This was the approach chosen by Glen Sinclair in a course pertaining to administrative ethics that he designed and tested at the University of Alberta a few years ago, and it appears to provide the underlying rationale for the program at the University of Wisconsin mentioned earlier. It also constitutes the basis for Bok's (1976) affirmative answer to the question: "Can ethics be taught?" Bok views with approval the development in some professional schools (notably Law, Medicine, Public Affairs, and Business Administration) of courses in applied ethics. They generally proceed by discussion rather than lecturing, and their main purposes are "to help students become more alert in discovering the moral issues that arise in their own lives," "to teach students to reason carefully about ethical issues," and "to help students clarify their own moral aspirations" (p.28). They are problem-oriented, taking as their starting point a series of contemporary moral dilemmas drawn from the context of the profession concerned.

In regard to methodology, it is well to remember the four main components of values education: (1) awareness of one's own and others' values; (2) sensitivity to the feelings, attitudes, and values of others; (3) moral reasoning about value-laden issues; and (4) ethical action which expresses or affirms prosocial behaviours (Meyer, 1976, p. 215). The first two of these components may be seen as preliminary to the "main event," and they can be facilitated through values clarification activities and human relations exercises. The heart of a course in applied ethics should consist of work on moral reasoning about value-laden issues; this can be effectively stimulated through the use of well chosen cases, and it can be enriched by selective recourse to works in moral philosophy and the humanities generally but its primary modus operandi is through discussion involving the application of intellectual skills to the analysis of professionally relevent ethical questions. It is important, however, not to stop short of the fourth component, ethical action; the significance of experience (which can be gained during preparation programs through simulations and internships) was demonstrated in the results of a comparative study of graduate students and practising executives in the field of business, which indicated that ethics tend to improve with experience (Fulmer, 1968, p. 39).

So one can envision a methodological sequence for courses in administrative ethics, beginning with the nonthreatening third-person discussion of cases or incidents portraying ethical dilemmas, moving to more ego-involving discussions as one's own ethical competence becomes the focus of attention, and progressing to the point of personal action on ethical problems (first through simulations and finally in field experiences). This methodological progression in courses to develop ethical competence, then, is from awareness through analysis to action.

The success of such efforts, of course, will be dependent largely upon the capabilities of the professors responsible for them. Bok (1976) observes that "unfortunately, it is simply a fact that many courses in applied ethics have been taught by persons with little qualification beyond a strongly developed social conscience" (p. 30). In suggesting what one needs to know in order to teach such a course competently, he says:

> To begin with, instructors must have an adequate knowledge of moral philosophy so that they can select the most useful readings for their students and bring forth the most illuminating theories and arguments that have been devised to deal with recurrent ethical dilemmas. In addition, teachers must have an adequate knowledge of the field of human affairs to which their course is addressed. Otherwise, they will neither be credible to students nor succeed in bringing students to understand all of the practical implications and consequences of choosing one course of action over another. Finally, instructors must know how to conduct a rigorous class discussion that will elicit a full consideration of the issues without degenerating into a windy exchange of student opinion. (p. 30)

In educational administration, this combination of talents may initially require, in most universities, a team approach to teaching such a course. However, it would probably be preferable to recruit or retrain individual professors of educational administration who can take full responsibility for the instruction themselves.

In order to design good courses in administrative ethics, considerable time and effort must be devoted to the determination of appropriate content and experience. Guidance for this may take such forms as "the educational administrator's ethical screen," developed by Immegart and Burroughs (1970, p. 95). This model is conceptually consistent with the "continuum of interest" which Hodgkinson (1978) recognizes as starting from the ego and extending outward to ever larger and wider ranges of interest:

> extended ego in the family, kin-group, and clan; the work-group; the organization of major employment; the community of work and of leisure, the sub-culture; and finally to society, nation, and culture at large. At each discernible quantum shift along this continuum, conflicts of interest can occur. (p. 192)

Frameworks such as these can be very helpful not only in thinking *about* ethics, but also as guides for the selection or development of cases for use in courses on administrative ethics — a task toward which UCEA might well direct its attention. Similarly, as Miklos (1978, p. 4) has observed, good research is needed on such matters as the nature of ethical problems confronted by educational administrators, the ways in which they typically cope with such problems, and the characteristics of educational organizations insofar as they affect the ethical behaviour of administrators. (In this regard, it is encouraging to note the recent establishment in London, Ontario, of Canada's first Centre for Research in Ethics, although its focus is mainly on biomedics, big business, law, and journalism.)

Some serious homework is required if the development of ethical competence is to be fruitfully pursued in preparation programs for educational administrators.

There are, nevertheless, some promising beginnings, particularly in courses like the one on adminstrative ethics at the University of Wisconsin outlined earlier.

Conclusion

In conclusion, the main points made in attempting to answer the questions posed in the beginning of this article can be summarized as follows: (1) ethics can and should be included in the formal preparation of educational administrators; (2) this is apparently not done widely or well at present; (3) it should be done consciously and as a distinct component of training programs; (4) ethical competence is basically an intellectual capacity, arrived at through cognitive development, and its nurture should be approached inductively in an educational administration problem-based way, using humanistic literature as supplementary rather than foundational; (5) it should be taught by educational administration professors with the necessary expertise, which may require some new forms of training or retraining; and (6) considerable research and the development of conceptual models are needed as bases for program design efforts.

A focus on ethics may present the "handle" to some exciting, important, and relevant training experiences that emphases on the humanities and values have somehow failed to provide. There is something vital, current, and personally pertinent about ethics that may be lacking in the humanities generally, as far as most administrators-in-training are concerned. Perhaps the day may come when entire preparation programs in educational administration are focussed on the development of ethical competence, with the selection of social science and humanistic content and of instructional materials and field experiences being determined by the nature of a few crucial ethical problems around which the programs are built.

Notes

1. The present use of this term is similar to that in Miklos' (1978) call for us to help administrators "become more competent in dealing with the ethical aspects of their actions" (p. 4).
2. It should be noted, however, that in a subsequent chapter, on "Towards the Ethics of Educational Leadership," the educational philosopher Theodore Brameld expresses a contrary opinion (p. 72).
3. This is the context in which it is used with military officers taking a year of graduate studies at the Naval War College in Newport, Rhode Island (This prof learned the hard way, 1979).

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BOOK REVIEWS

THE ABCs OF LITERACY. *By Stephen N. Judy.* Toronto: Oxford University Press, 1980, 361 pp., $21.25.

The ABCs of Literacy is a statement of a contemporary reformer's perception of education. Judy, the author, believes that the time is ripe for *real* reform in education, but he does not explain why. My view is that universal public education, being just over a century old, has hardly been considered seriously by first-rate philosophers and thinkers. There are exceptions and Dewey's writing comes to mind. Anyone familiar with the works of Dewey will realize the pervasive "progressive" influence throughout Judy's work. This suggests the concept propounded by William James that ideas go through a process of gestation. They are criticized, ridiculed and forgotten, then they re-emerge and are considered more seriously. We are entering the fourth generation of Dewey's ideas and it is clear that they now form the woof of the fabric of contemporary educational thought.

Before being introduced to current theories the reader is introduced to some of the main criticisms of the schools and to a consideration of some of the main responses to those criticisms. I believe Judy is substantially correct in his review of the criticisms and in his responses to these criticisms. Those who complain about literacy in the schools simply do not pay sufficient attention to the data; their consideration of the evidence is usually unscientific and the testers have a vested interest in keeping things unclear or ambiguous. It is a damning statistic to show that there has been a decline in achievement in verbal and math tests that has averaged out at 40 points in recent years. It is inexcusable that the meaning of this decline has not been carefully explained and it is immoral not to emphasize that the strange grading sytem used by some testing services makes a variation of 60 points statistically insignificant. This is what Judy's analysis suggests.

The ancient fallacy that today's generation is not as good as the last is explored. It is pointed out that literacy is perceived to be a human characteristic that carries with it a burden of unrelated qualities. People who can read or write are somehow deemed to be "better" in complex and varied ways than those who cannot read or write. Accepting the intellectual superiority of readers and writers is easy and obvious but the moral or ethical superiority of readers over non-readers is much more conjectural. It would seem that contemporary critics of education merely reflect a current version of the Greek view that the world has deteriorated since it was ruled by Olympians. Judy produces samples of evidence from the last 200 or so years that clearly indicate that there never was a golden age of literacy and today is a dark age only in the minds of those who want to see it that way. Strangely, these critics consistently make statements that are bereft of evidence and reveal an extraordinary ignorance of the problems associated with these kinds of assertions.

After highlighting some of the pseudo problems of education, we are introduced to the "real issues." These issues, it is argued, are associated with the growing detachment of education from society. Greek education, Judy claims, was always integrated with the needs of society and the children of Greek aristocrats learned what was functional and relevant. By the 1840's the wealthy young Americans may well have known how to decline the Latin verb "to swim," but many of them started out to become naval officers but were drowned before they were commissioned. The Greek aristocrat learned to exist under the conditions of his day as well as learning rhetoric, poetry and mathematics.

Judy reveals a main issue of contemporary education when he cites this kind of detachment from reality. He presses the point further when he indicates the kind of "decaling" that goes on in classrooms. That is, the tendency to analyze writing to reveal topic sentences, unity, coherence, introduction, conclusion, body. . . the parsing of sentences into verbs, nouns, gerundives, etc. It is little wonder that children do not read and write as well as they should. They simply do not spend sufficient time on these "wholesome" pursuits. Reading and writing about significant issues will do more to improve reading and writing than all the grammatical exercises in all the workbooks used in Canada.

The first part of Judy's book is an effort to establish a set of arguments which justifies the introduction of an enormous variety of activities where language is shown to be the medium of education. There is something awry with this argument. For example, Judy writes:

> We must educate children through language to the level of their capabilities, by providing a good, general. . . education.

Many of the exercises Judy cites are taken from the sciences, career guidance, sociology, anthropology, and other areas of learning. The point is, to grasp these activities properly, teachers would be required to have an understanding of the disciplines from which the exercises derive. This is an interesting theoretical issue. Should the teacher who is competent in language and educated in a discipline (or a couple of disciplines) be the basic teacher or should teachers be experts in language and then make sorties into a variety of disciplines.

My own view is that the former approach is reasonable because those trained in language tend to concentrate on language and "literature" rather than on the dynamics of a particular discipline. Most students who wish to become teachers have had 12 years of language in schools — what they need is to develop competence in particular areas and not necessarily more competence in language per se. Indeed one of the main problems with contemporary education is the literary orientation that dominates the schools. Another is the tendency to "academicize" everything. Children need to get out into the world and to make observations, predictions, and assessments as if they were were scientists, historians, sociologists, and so on. This requires more than a thorough knowledge of language and it is also an issue that Dewey explored.

This is a useful volume which presents a case clearly, forcefully and well. It is a useful volume because it reveals the mindlessness of the typical conservative argument. It is also an excellent volume for the classroom teachers who desire to think about the future, as it contains some interesting ideas about planning and is a tremendous resource for activities. There appears to be an inconsistency between the arguments for a more relevant approach to education and the emphasis on language, but this is a technical and theoretical argument that does not detract from the usefulness of this volume for public and high school teachers.

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THE CANADIAN CURRICULUM: A PERSONAL VIEW. *By Robin Barrow.* London, Ontario: The University of Western Ontario, 1979, 118 pp. ISBN 0-920354-04-1.

Robin Barrow, Lecturer in Philosophy of Education at the University of Leicester, spent the academic year 1977-78 as a Visiting Professor in the Faculty of Education, University of Western Ontario and, on the basis of this experience, wrote an essay, the main thesis of which is that Canada ought to adopt a compulsory core curriculum with Barrow's guidelines as to content. Barrow arrives at this thesis rather wanderingly via a discussion of "progressive" and "radical" critics of educational practice. Each gets a chapter and, likewise for loosely collected discussions about "Classroom Practice" in which he includes justifications for English and history on the curriculum, some comments on the unlikelihood of Canadiana inspiring a sense of Canadian identity, values education, evaluation and models of teaching, sundry other topics, and "The Faculty of Education Curriculum" which deals mainly with what ought to be taught to student teachers.

What Barrow has to suggest about the curriculum is that there be a primary stage (Grades 1-7) concerned with developing literacy, numeracy, computer competence, physical health and pursuit of (educational) topics that interest the children, e.g. handicrafts. There should be, next, a transition year (Grade 8) during which the natural sciences, mathematics, and fine arts are studied. There should then follow a secondary stage (Grades 9-12) devoted to English, history, social study, and French.

What is controversial about this is of course the emphasis to be placed on the humanities at the expense of the natural sciences: twice the amount of time as is presently spent in Ontario on history and English and one-half the amount on mathematics. Surely Barrow is right to want a redress in the present over-balance of sciences to humanities; but his proposal would swap one imbalance for another, and in consequence leave students largely ignorant of the very underpinnings of our technological society. The trade off in favour of developing the skills of communications, which Barrow takes to be justification for his preponderantly humanistic curriculum, is simply too expensive.

Barrow may be correct, turning to his main thesis, that we ought to have a compulsory core curriculum; but this is not convincingly shown by any of his arguments. His "argument from knowledge" shows that there are some propositions that are supracultural (e.g. mathematical propositions) but not why *they* ought to be taught. The "argument from culture (small 'c')" is intended to show that national unity depends upon having (some) shared culture; hence the need for everyone to study history, etc. He is surely right in some matters: we must all agree to obey common laws, for example. But Barrow seems to have missed the point about the desire in Canada to preserve cultural diversity. National unity is not the same as cultural homogeneity. The "argument from Culture (capital 'C')" fails because, although it succeeds in the claim that various fields, music for example, have reasonably objective criteria for determining quality, it does not show why on the curriculum there should appear, for example, the best classical music but not the best rock music. The "argument from choice" nicely shows why students ought to study complex subjects, namely because they are not easily picked up on their own, but it does not provide any reason for insisting that students should be compelled to study one particular complex subject rather than another.

The essay is disappointing in other areas as well. For instance, for whom is Barrow writing this? If curriculum theorists, philosophers of education, etc., then he is enormously patronizing in tone and topic. If students of education, then he

touches on far too many topics without drawing them together well or dealing in sufficient depth with any. A related sin is that many of his excursions are unnecessary to sustaining his overall thesis — this is especially true of the two chapters devoted to (inexplicably selective) discussions of radicals and progressives. It is solid philosophical discussion of the curriculum that we need regardless of who writes it. Barrow, however, is superficial and impressionistic. Perhaps this is so because Barrow's Canada is Ontario. He admits to knowing little about the rest of Canada, yet fails to see this as a problem when making national curriculum proposals.

In sum, what could have been a useful contribution to the important matter of a core curriculum is impressionistic and weak.

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PIAGET'S THEORY: A PSYCHOLOGICAL CRITIQUE. *By G. Brown and C. Desforges.* London: Routledge & Kegan Paul, 1979, 196 pp.

In *Piaget's Theory: A Psychological Critique*, the authors have combined an overview of Piaget's theory with an in-depth empiricist critique. If the book is judged in terms of how it meets both these ambitious goals, it will be seen as lacking in several important respects. However, if it is more modestly viewed as an attempt to assemble the growing accumulation of empirical data which now poses serious problems for orthodox Piagetians, then the book indeed fulfills a useful function.

For the student new to Piaget, the book can not replace the more accessible introductions to his theory such as are offered by Ginsburg and Opper (1969) or Flavell (1963). The overview of the theory which Brown and Desforges provide focuses primarily on the concept of stages and their invariance, the logico-mathematical structure of children's thought, and the equilibrium process. Few examples are included and only a cursory definition of many of Piaget's terms is provided.

Although the authors of this book are English, the description and critique of the theory is definitely biased towards the North American perspective. The authors' aim is to demonstrate that Piaget provides a competence model of development, rather than a performance model. The claim is that this fact insulates the theory somewhat from direct empirical examination and makes it more difficult to assess. Nonetheless, the theory stimulated considerable empirical research, and has been the subject of numerous critiques. (cf. Flavell, 1963; Brainerd, 1978).

The major thesis of the book is that Piaget's theory, when subjected to strict critical examination in light of the assembled empirical date, fails on three accounts: (1) much of the theory is untestable; (2) that which is testable in the theory has often been shown to be wrong; and (3) the theory has become overburdened by post hoc constructs such as "decalage" and "task resistance," which serve to salvage the theory at the expense of parsimony and predictability. In addition, the authors claim that Piaget ultimately provides no explanation of development, that is, how structures evolve from stage to stage.

In their critique, Brown and Desforges review many of the well known criticisms which have been voiced by North American researchers such as Brainerd, Gelman, Trabasso and Bruner. These and other researchers have shown that given special conditions, the onset of particular logical competencies can be moved up or down the developmental scale by manipulating task components or the experimental setting. Likewise, stage-like behaviour can be made to appear or disappear by manipulating assessment criteria; logical behaviour can be induced via certain training procedures, and even very young children can be shown not to be egocentric, given the right set of conditions. For example, Piaget has claimed that preschoolers can not conserve number or quantity. Yet Gelman (1972) has shown that three-year-olds can conserve number if the set size is limited to under four items. One must inquire whether such limited demonstrations of logical competencies appearing much earlier than Piaget has claimed (and out of step with other concrete operational abilities) in any sense invalidate his theory as Brown and Desforges seem to imply. In my view, they do not. In the above example, young children could only conserve sets which they could subitize, i.e., sets which they could quantify in a single fixation without the purposeful allocation of attention. Thus, is this ability to recognize changes in quantity, when only two or three items are involved, an example of a general logical competency? Or is it, on the other hand, a cognitive precursor to conservation which is built into the human information processing system?

The authors are undoubtedly correct in pointing out the deficiencies in certain of Piaget's explanations and constructs. Still, their critique often seems to lack focus. Their criticisms tend to range back and forth from the almost trivial to the profound, without them always being clear on what is at issue. The source of this inconsistency lies, ultimately, in the nature of this book itself. Critiques which merely serve to point out problematic or anomalous data from the experimental literature are generally less effective in identifying or clarifying key theoretical issues than critiques which are embedded in the presentation of a rival theoretical position or paradigm.

In the final chapter of the book, Brown and Desforges do discuss several recent attempts to develop more performance oriented theories. These theories, they imply, can in some sense be viewed as rivals to Piaget's theory of development. The theoretical positions which the authors present are Pascual-Leone's theory of constructive operators and information processing theory. These positions are unfortunately described only in barest detail. A more in-depth account, describing how these theories handle both the data handled so well by Piaget's theory and the data which have become so problematic for it, would have been useful to help the reader to place the foregoing criticisms in clearer perspective.

This book is one more indication that Piagetian theory is currently undergoing a degenerative phase in its development. The theory has become increasingly burdened by anomalous data, post hoc explanations, and constructs for which empirical support is not forthcoming. In addition, factors which the theory does not address at all, (e.g., the growth of processing capacity) have recently been shown to have a significant effect on the course of development. It remains to be seen whether Piaget's theory will recover from these challenges and enter a new progressive phase, or be superseded by one of the newer functional approaches to development. For now, this book stands as a good account of the present weaknesses in Piaget's theory, as it is perceived from the strict North American perspective.

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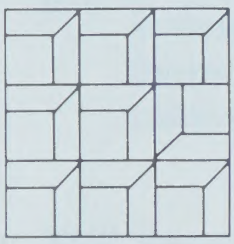

Journal of Education

Published by
Boston University
School of Education

WINTER 1980 Volume 162, Number 1

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7. Spelling shall conform to the *Oxford English Dictionary* or to the *Dictionary of Canadian English,* except in the case of direct quotations which must conform to the original. Editorial alterations will be made if necessary.
8. In matters of style, the APA Publications Manual is considered definitive.

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